

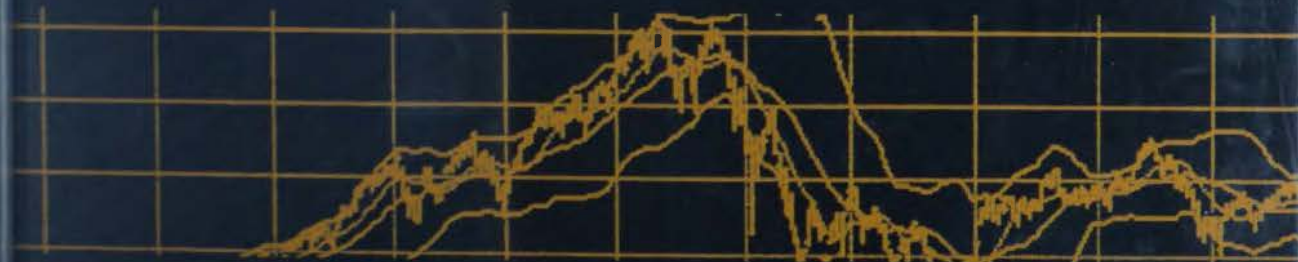


Wiley Trading



# FOUR STEPS TO TRADING SUCCESS

USING EVERYDAY INDICATORS TO  
ACHIEVE EXTRAORDINARY PROFITS



JOHN F. CLAYBURG

## FOUR STEPS TO TRADING SUCCESS

Success in any area of endeavor, whether it be a craft, the arts, or business, is not based on having the right equipment, or raw materials, but rather on knowing how to use them. Likewise, success in the stock market is not dependent on having access to good indicators, but rather, on knowing how to read them against prevailing market conditions.

Technical analysis, the reading of price and volume charts to identify trading opportunities, has long been a staple in the trader's toolkit. And with the advent of online trading, technical analysis has become more readily available to traders than ever before.

However, even with multiple Web sites offering a variety of common indicators along with the guidelines on how to apply them, many traders are still not realizing the kind of profitable results they could be achieving.

In *Four Steps to Trading Success*, Dr. John Clayburg, a technical analyst with more than twenty years in the game, provides the serious day trader with a wide array of tools that can be used to build an effective day trading system, regardless of the indicators. In clear, easy-to-understand language, Clayburg explains how to use and interpret common indicators that are freely available on the Web to develop a trading strategy that fits each trader's personal goals and ambitions.

Clayburg's goal is not to teach a system that, when blindly adhered to, will bring everyone the same results. Rather, he strives to instill a new mind-set, combining proven techniques with logical processes and some commonsense filters to enable traders to "customize" their own trading strategies

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using their own personal experiences, observations, and interactions to achieve greater trading success. For example, the author introduces the use of a simple early morning filter that, with 75 percent accuracy, defines each trading day in such a way as to make the interpretation and use of indicators much more reliable. By using this technique to enter the market each day, traders can significantly increase the accuracy of their trading.

Whether the goal is finding out how to get the most mileage out of online trading, learning how to interpret multiple indicators for a more accurate picture of the market, or just gathering some new insights to help improve one's game, *Four Steps to Trading Success* promises to make any trader a more informed, more successful investor.

**JOHN F. CLAYBURG, DVM**, has been involved in trading systems development for over twenty years. He is the developer of the Cyclone S&P Day Trading System, a system consistently ranked in the top five and often #1 by Futures Truth. He is also the author and developer of Parallel User Function Technology, a unique, self-adaptive trading software platform that gives systems and indicators uncommon resilience. Dr. Clayburg is a frequent speaker at industry conferences and holds system development seminars for clients around the world.

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# DEVELOP A SUCCESSFUL TRADING SYSTEM AND ACHIEVE EXTRAORDINARY PROFITS

"This is by far one of the best trading books to come along in a long time. It deals with specifics in market entry, exits, and stop placement in a simple, understandable approach. This is a well-defined trading plan that will benefit both the long-term and short-term stock trader. Buy it. You will not be disappointed."

—John Hill, President, Futures Truth Co.  
coauthor, *The Ultimate Trading Guide*

In a straightforward, easy-to-follow format, John F. Clayburg divulges his techniques for identifying the major trends, determining the "trend within the trend," finding the optimal entry, and then choosing the right time to get out. More than just a guide to indicators, the book teaches investors how to observe, analyze, and recognize patterns that will help them make smart trading decisions, in any market.

Here are just some of the strategies covered:

- How to use and interpret indicators that are freely available on the Web
- How to develop an effective system
- How to use a simple early morning technique that will significantly increase the accuracy of your daily trading
- How to achieve your own optimal trading frequency
- How to interpret multiple indicators for optimum returns
- How to automate your system using commercially available software

Filled with useful, time-tested techniques that will never become obsolete, regardless of advances in technology, *Four Steps to Trading Success* is a must for any serious day trader looking to improve his or her track record.

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# **FOUR STEPS TO TRADING SUCCESS**

**Using Everyday Indicators to  
Achieve Extraordinary Profits**

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**JOHN F. CLAYBURG**



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For my grandparents

Dr. William F. Clayburg 1889–1969

Dora Bellamy Clayburg 1888–1958

John O. Anderson 1888–1975

Faye C. Anderson 1896–1991

And my parents

Frank T. Clayburg 1916–1975

Claribel Clayburg 1915–1992

To my wife, Karen, my best friend since 1964

To our children, Gary, Roger, Kathy, Tom, Michael

Also Adam, Amber, Beth, Eric, Ryan, Tom, Trish, &  
Margie. You guys know why.



# PREFACE

A great musician can create a work of art with his/her voice alone, while a poor one couldn't get it right with the most expensive organ and sound mixing equipment.

A good carpenter can make a great house from a collection of used, recycled boards. A bad carpenter couldn't erect a decent doghouse with the finest mahogany or walnut construction materials.

The same is true of trading.

There are no "good" indicators in my opinion, but there are good traders. Good traders can trade well with lousy indicators because they observe. Poor traders trade poorly even with 'good' indicators because they don't.

Average traders, and most of us are average, can trade very well with average indicators. Yes, some indicators are better than others in a given scenario, or even in a general sense. But, with considerable effort, most traders can be successful using commonly available trading tools.

The indicators that we use in this book certainly aren't the most complicated and obviously aren't the most expensive. They are actually provided free with most basic charting packages.

Good traders can trade well with common indicators such as the ones we will use here. The key is that the intrinsic worth of an indicator is mostly derived from the traders' ability to observe and ascertain the behavior of their favorite indicators against all market conditions. Many of the top traders focus entirely on using one or two simple indicators to trade only three or four stocks. Their key to success revolves around the constant, painstaking observation of their trading tools as they interact with their stock of choice. It can take a significant amount of time to become intimately familiar with these chart/indicator relationships. The time needed to master these

patterns is directly related to the dedication and amount of effort one wishes to devote to the task at hand.

My attempt here is to demonstrate an alternative method for the use of a few of the commonly available, popular technical indicators. These techniques, combined with a few logical processes and common-sense filters, along with considerable effort and dedication on your part, can significantly improve your trading success.

JOHN F. CLAYBURG

*Coon Rapids, Iowa*  
*May 2001*



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Thanks to Tom DeMark for introductions that led to this publication.

And finally, most special thanks to my family, my wife, Karen, and our children, Gary, Roger, Kathy, Tom, and Michael, for their support and patience during the busy time writing this book.

J.F.C.



# CONTENTS

## **INTRODUCTION 1**

### **CHAPTER 1**

Day Trading Methods and Philosophies 5

### **CHAPTER 2**

Why Traders Lose 17

### **CHAPTER 3**

People, Prices, Personalities, and Probabilities:  
Why Technical Indicators Really Work 23

### **CHAPTER 4**

The Concept of Trend Exhaustion 33

### **CHAPTER 5**

Conventional Use of Online Indicators 37

### **CHAPTER 6**

Multiple Indicator Sensitivity Settings 61

### **CHAPTER 7**

Market-Defined Support and Resistance Categories 75

**CHAPTER 8**

Support and Resistance in Actual Trading 99

**CHAPTER 9**

Combining Dual Signals, Support, and Resistance 111

**CHAPTER 10**

Directional Day Filter 119

**CHAPTER 11**

Alternate Use of Online Indicators: Identification of Exhausted Corrections within the Major Trend 147

**CHAPTER 12**

Putting It All Together: Using Common Oscillators, Support, Resistance, and the Directional Day Filter to Achieve High-Accuracy Trades 179

**CHAPTER 13**

Directional Day Filter Breakout System 235

**CHAPTER 14**

Using an Automated System 253

**CHAPTER 15**

Using Online Charting Services 259

**CHAPTER 16**

Other Indicators and Systems 265

**DATA APPENDIX 267****INDEX 299**



# INTRODUCTION

With the advent of online trading, technical analysis has become more readily available to traders than ever before. Multiple web sites exist that offer a number of indicators and studies for use on price charts of any market, any time frame. Most of these sites offer these basic services at a very reasonable cost to the trader, if not absolutely free. Although there are significant online resources explaining the commonly accepted methods of application and interpretation of the many available indicators, the unfortunate fact is that many of the oscillator indicators are not being used to their most profitable extent. This is due largely to the fact that the designs of most of these indicators, in their conventional interpretation, work well only on certain types of trading days.

In this book I will explain the use of a simple early-morning filter that, with 75 percent accuracy, will define each trading day in such a manner that trading with oscillator indicators will be much more accurate. This information allows the trader to introduce an alternate method of using common oscillator indicators, enabling you to trade in the direction of the major trend. By entering the market in this fashion you can give yourself the edge necessary to increase the accuracy of your trading significantly.

Many different combinations of trading tools will be detailed in this book. It is not the purpose of this text specifically to define an exact trading strategy that will work on all issues for all traders. Rather, my mission is to provide the serious day trader with a wide array of instruments that can be used to build an effective day trading system.

It would be quite rare for any one person to use all the materials in this book. Undoubtedly, each user will find a particular combination of trading tools most useful for his or her own purposes. That's the whole idea. On what issues they are used, what time frames, stop placement levels, objectives, and so forth are determined by the individual traders, complementing their own trading styles.

I've often commented that the only real purpose of a college education is to give students a basic set of facts and teach them how to think. It's not a lot different from giving a potential homeowner a saw, a hammer, a sack of nails, and a pile of lumber and teaching the person how to use each item at his or her disposal. The type of home built by 100 such individuals with this opportunity will probably turn out to be 100 houses with 100 separate sizes, shapes, descriptions, and eventual uses. The probability is that each new home will work well for the new homeowner, even though all are different.

In the same respect, the needs and desires of each and every trader will probably differ considerably from others in the same profession. Traders must believe in their strategies if they are to have the confidence necessary to trade the system successfully. This can only happen when the traders themselves have participated fully in the construction and development of their own systems.

While spending several years as a coach of a high school academic team, I had the privilege to work with several talented, competitive, aggressive, and gifted young people. They would have had very little success had I insisted on a structured process to create a solution for the project at hand that made up our competitions. We were much more successful allowing the imaginative, creative energy of the group lead to the resolution of many of the problems encountered on the way to a solution.

So it is with any dedicated group of individuals. Allowing the creative energy to find its own direction and ultimate solution is far superior to any structured method.

It has always been my observation that most successful traders are so not because of their ability to follow blindly the lead of someone else, but because they can draw from many experiences, observations, and interactions gained over years of market research, thereby creating a successful trading strategy.

It is not my purpose to dictate the structure of a definitive trading system and insist that all who are serious about using the materials in the book must use it in a specific manner or be doomed to certain failure as a trader. That is not a practical or reasonable solution, any more than we could expect all new homeowners to live the identical lifestyle of their neighbors in homes that are the exact duplicate of each other in every respect. Humans are extremely different organisms in many ways.

For those desiring a more structured trading environment there is also presented in Chapter 14 basic information on the development of a computerized system that takes advantage of many of the strategies discussed in earlier chapters.

I cannot emphasize enough the necessity of customizing any trading strategy you develop, either from this book or from other sources, to each specific issue or contract you will be trading. As discussed regularly in the upcoming pages, each stock or contract has its own personality with regard to its response to any technical analysis vehicle. The ability to recognize these differences and take advantage of this knowledge is often the one factor that separates the really great traders from the rest of the bunch.

As you read through the remainder of this book, realize that the material presented here can be used to either enhance an existing trading method or actually build an entire system from the ground up. You will find here a different way of looking at trading in general. My hope is that you will find these techniques helpful as you strive to increase your trading accuracy.

There are many chart images presented on the following pages. It was necessary to create these images with a significant amount of detail to adequately explain some of the complex routines being addressed. As a convenience to readers, I have placed several of these detailed images on my web site in a larger format and in color to make it a bit easier to interpret the routines. As you encounter these images in the following chapters, you may want to visit [www.clayburg.com](http://www.clayburg.com) to examine them more closely. Please follow the appropriate links.





# 1

## DAY TRADING METHODS AND PHILOSOPHIES

When one speaks of the relative length of time one is actually in a trade, the terms *long-term* and *short-term* are often used. Most would agree that day trading, in general, would be classified as a short-term strategy, while holding positions overnight for one or more days would fit more into the long-term category. However, with the popularity of day trading, multiple market strategies that are used to accomplish this complex task have come of age. Consequently we can further define certain day trading strategies as long-term and others as short-term.

When we refer to day trading in general, about the only parameter we actually define is that an entry and exit must be accomplished during the same day to qualify the trade as a day trade. Therefore, technically, a trade that is entered at the first print of the day (the first price at which the commodity or stock issue trades for any given day) and exited on the close of the trading session qualifies as a day trade. Obviously, dealing with the opposite extreme, a trade that is open for no longer than a few seconds also qualifies as a day trade.

## LONG-TERM DAY TRADING

Long-term day trading strategies, since they are usually placed early in the day and exited near the close, are more likely to be used by those who are not able to observe the markets closely throughout the trading day. The amount of actual time and effort required to implement such a strategy successfully on a daily basis is significantly less than that required to trade a shorter-term situation where many trades are entered and exited throughout the day. These longer-term strategies will produce fewer trades than the short-term methods to be discussed later. These trades are therefore impacted to a lesser degree by transaction costs such as commissions and slippage. (Slippage is the difference between the price you specify when placing an order and the actual price at which your order is filled. This parameter can vary significantly with the issue in question and the overall activity of the market. In most cases slippage is negative, reducing the profitability of the trade by the amount of slippage experienced.)

The objective of a long-term day trading strategy is to capture the larger profits that can be generated by the so-called trend days. These are the trading days during which the market opens near the high or low of the day and closes near the opposite extreme, trending more or less in the same direction for the entire day. These days, which occur on a regular but infrequent basis, can be extremely profitable. Let's examine a few strategies that can lead to a successful day trade on these trending type days.

One of the favorite strategies for trading the trend day is to analyze the market activity of the previous day (or days) in an attempt to profit from an extension of similar activity for the next day. These trades are entered either on or shortly after the open of the market, expecting the trend for the day to continue in the same direction as the previous day's trend. This technique is also referred to as follow-through trading, as the trader is anticipating that the forces that created previous trends in the market are still present and will continue to provide similar impetus to the market during the majority of the next day. The expectancy of this strategy is, in the case of an uptrending market over the previous day(s), that the market will open in the vicinity of the close of the previous day. Follow-through from yesterday's activity should continue to propel the trend higher through the balance of the trading session. Substantial profits can be gained in this manner.

An equally effective method used to capture the big trend for the day for your trading account is one of several strategies that consider the activity of the market early in the day. These approaches attempt to analyze a relatively small data sample shortly after the opening of the day and develop from this activity a method by which a profitable trade will result. The most widely used strategy for this type of trade involves one of the many variations of trading the breakout or reversal of a market-determined early-morning range. Some strategies involve the placement of buy and sell stops above or below this early range in the expectation that a breakout of this early range will continue for the rest of the day. Others use this early range as a predictor of sorts, attempting to determine how far the market will rally or fall after breaking out of this range. These systems then attempt to capitalize on the reversal of the opening range breakout, assuming that the high or the low of the day has been established by this time and that the remaining activity for the day in question will be in the opposite direction.

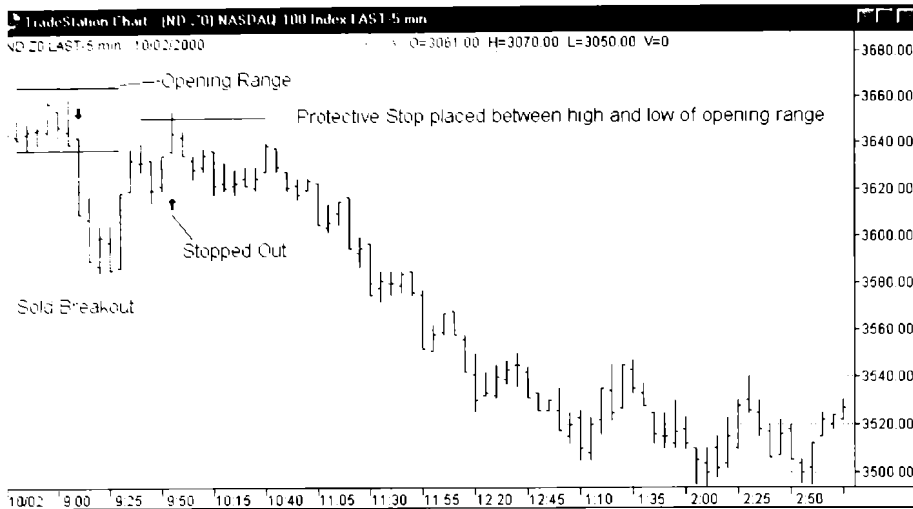
There are in existence a great variety of effective methods that can be used to profitably trade the opening range breakout. It can be effectively argued that one variation or another of this technique is the basis for a majority of the most profitable day trading strategies. One of the more effective ways to take advantage of this method, using the Directional Day Filter, is covered in detail in Chapter 10.

A trade generated by any of the aforementioned methods is effective only if, in fact, the trend as predicted for the day actually develops and generates a profitable result. Obviously, this is not always going to be the case in real-time trading. There will be a significant number of days during which this projected trend will not develop. Many days will evolve into a wandering, sideways, trendless affair that, if we are lucky, will result in a modest profit—or perhaps only a breakeven trade. These days can also result in significant trading losses should this wandering trend develop a slight upward or downward bias in the opposite direction of our anticipated trend. The worst-case scenario also exists whereby the trend of the day develops in the direction opposite the one we are anticipating according to the signals generated by our basic strategy. We are depending on a developing trend to be of significant magnitude to generate a fairly large trading profit when our signal is correct. When we are not correct, this same significant market movement can result in unacceptable losses for our trading system.

The challenge then becomes one of effective placement of our stop loss orders. If we are incorrect in the prediction of an anticipated trend we must have a plan in place that will recognize this fact and get us out of the trade with the least possible damage to the bottom line. There are again multitudes of methods to accomplish this task. One can use an absolute stop, which will risk only a given dollar amount, be it a fixed figure or a percentage of the amount of capital available. Stop losses can also be generated by the same market activity that produced the entry signal. For instance, if one were trading the classical opening range breakout from the long side, having entered on the breakout of the high of the early range, the stop loss order could be placed at the bottom of the early range. Yet another effective stop placement routine involves the use of stops that are adjusted throughout the trading day, gradually reducing the trader's risk exposure and eventually locking in successively higher levels of profit. These stops are often referred to as trailing stops and can be calculated from a wide variety of formulas.

Effective stop placement can arguably be the key to any effective trading strategy. The primary use of stops is obviously to limit the exposure to trading losses that occur when we find ourselves in a bad trade. Placing these stops at levels that will prevent large losses from occurring while at the same time allowing the anticipated trade to develop properly is the challenge faced by every trader. Stops that are placed too close to our entry point or critical chart point will certainly limit our trading losses to an acceptable level. However, the close proximity of this point, despite the resulting comfort to the trader that he or she won't lose a significant amount of trading capital on this trade, carries with it a major risk. Placement of close stops often has the result of stopping us out of a trade on a minor correction and eliminating the profits that could have resulted had we been able to maintain the position through the correction. There is another danger, though, if one places the stop at a point much further from the entry point or significant chart point in an attempt to stay in the expected trend for the entire day. If the stop is indeed hit by market activity, the resulting losses may be greater than the system can tolerate and still produce an acceptable trading profit over time.

Figure 1.1 illustrates the result of placing your protective stop too close to your point of entry. On this chart we are simulating trading the breakout of the early-morning range of the Nasdaq 100 index fu-



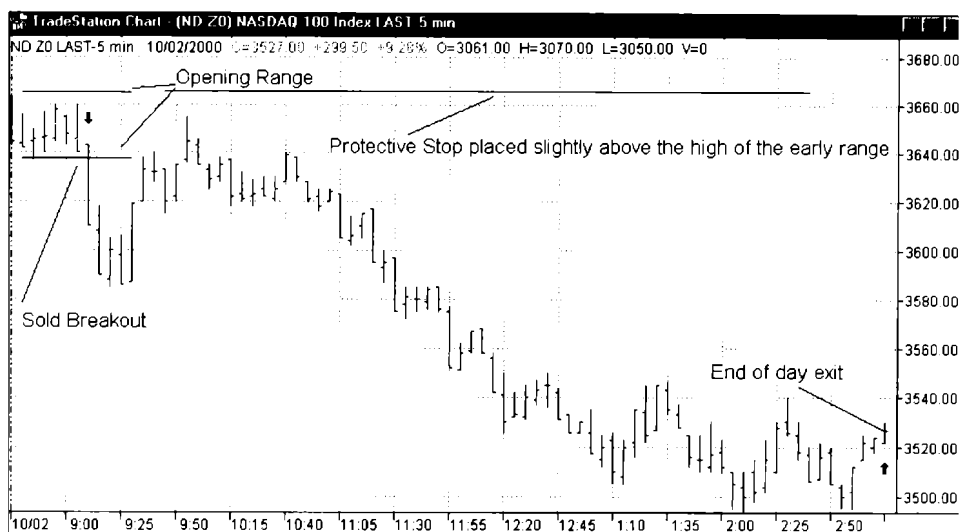
**Figure 1.1** Placing protective stops close to the entry point, while certainly limiting the size of a potential loss, often results in missing the big trade.

Chart created with TradeStation® 2000i by Omega Research, Inc.

tures contract. Note the two horizontal lines marking the range established during initial trading. Our short position is taken as the market trades through our sell stop as indicated on the chart. Our trader, being conservative in nature, places a protective stop at the halfway point between the high and low of the early breakout range, thinking that if this point is violated the trade will be in trouble. This will limit the potential loss on the trade to a level acceptable to the conservative trader. Unfortunately, the market violates this level approximately 45 minutes later, resulting in a loss for the trader.

Figure 1.2, displaying the identical trade, depicts the result of the trade with a more logical stop placement. In this case the trader has placed a protective stop slightly above the high of the early range, recognizing that a break of this level by the market could result in a significant rally and thus an unacceptable loss for the trade. The net result for the trade is what is expected from the long-term day trading strategy as the trade is maintained for the remainder of the day and is closed out on the close of the day for a substantial profit.

Although this is a hypothetical trading example, it illustrates the importance of proper placement of protective stops when using the more aggressive long-term day trading strategy. If one is too conservative, the



**Figure 1.2** A more logical stop placement strategy allows the trade to realize its full potential.

Chart created with TradeStation® 2000i by Omega Research, Inc.

likelihood of a greater number of losses exists. If one takes a more aggressive stance regarding stop placement, the danger exists that the losses accumulated by this strategy will be too great to allow a net profit in the final analysis. It is necessary to evaluate stop placement thoroughly over a significant amount of historical data if one is to formulate a profitable long-term day trading strategy.

The adjustment of the stop placement routine is indeed critical to the ultimate performance of any long-term day trading strategy. Only when these stop levels have been accurately determined are you ready to trade the system.

Once you have determined the optimal placement for your stops and are comfortable with the profit levels generated by your system, you may notice another "feature" of this type of day trading method.

The majority of long-term day trading systems by their very nature must depend on the big winning trade to generate the majority of profits for the trading method. Since there are usually more sideways, trendless days than the type of big trending day on which these systems depend, it naturally follows that there will be a significant number of days during which losses will occur. It is not uncommon for systems of this nature to experience less than 40 percent profitable



trades over time. Therefore 60 percent of the trades from the system may generate losses. For one to be successful in the everyday trading of a system such as this, the trader must be willing to absorb multiple smaller losses while waiting for the big trade to develop that should wipe out the losses and generate profits for the system. While this seems to be a simple concept to understand, it can be quite difficult for many traders to tolerate the successive losses that precede the winning trade.

Becoming frustrated by successive losses, often traders will attempt to pick and choose trades generated by the system in an attempt to avoid a few of the small losses that get to be quite annoying. Traders are usually successful at avoiding some of the losses generated by the system. After all, there are more losing trades than winning trades from such a system, and simple probabilities make it likely that some trades that would lead to losses will not be taken. However, over time the net result of this approach usually results in the trader missing the one or two big trades generated by the system. Even though the trader was successful at avoiding some of the associated losses, the result of missing the big winning trade or trades more than wipes out the gains realized by avoiding a few small losing trades. It is for this reason that many people are unsuccessful in their attempts to trade a longer-term day trading system. Only traders possessing significant confidence levels regarding their systems and who are able to maintain the emotional traits necessary to absorb multiple losses while waiting for the big trade to come along will be successful with these strategies.

Since this class of day trading strategy must depend on the occasional big trade for its ultimate profitability, it logically follows that the equity curve tracking the progress of such a system will display a rather erratic pattern. Several consecutive small losses will cause the graph to course steadily downward, only to be suddenly propelled significantly higher with the appearance of one of our highly profitable trades. Then again the line depicting the profits of the system will usually slide lower, preparing for the next big trade. This tracing of the system's results in many instances could also be a representation of the emotional state of the trader who is actually taking these trades for his or her personal account. The ability to endure these swings, in terms of both system profits and the mental health of the trader, is certainly a factor that bears upon the ability of the individual trader to trade such a system successfully. These methods are often referred to

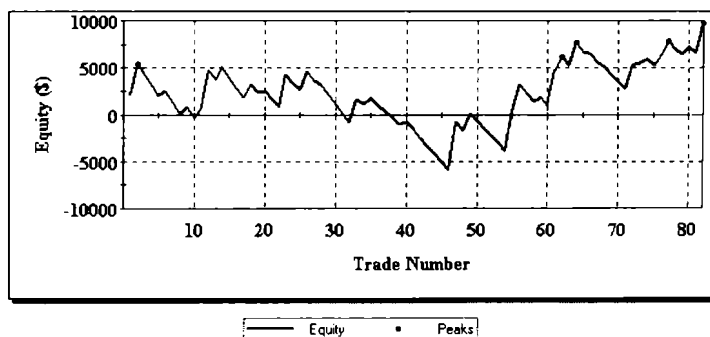
as roller-coaster systems due to the unique shape of the equity curve that traces progress.

Figure 1.3 shows the equity curve of the Cyclone System, a long-term day trading method that is designed specifically to day trade the Standard & Poor's 500 futures contract.

Although the system did generate over \$9,700 in profits for the September 2000 contract in 80 trades over three months, the roller-coaster ride was certainly not a comfortable one for those trading the method. Note that the system went from a net \$5,000 profit to a net \$5,000 loss before finishing strong with a profit for the contract. Such a ride is quite typical for a long-term day trading system when applied to a volatile stock issue or commodity contract.

### SHORT-TERM DAY TRADING

In sharp contrast to the longer-term methods just outlined are the short-term strategies that many people use to day trade. These systems generate a greater number of trades each day, therefore causing them to be more sensitive to transaction costs such as commissions and slippage. This type of trading activity requires, by its very nature, considerably more time during the trading day to successfully implement and monitor trades.



**Figure 1.3** Since many longer-term day trading strategies must depend on the big trade for most of the profits for the system, it follows that multiple, smaller, consecutive losses occur. This equity curve of the Cyclone System demonstrates the gyrations one must endure when trading such a system.

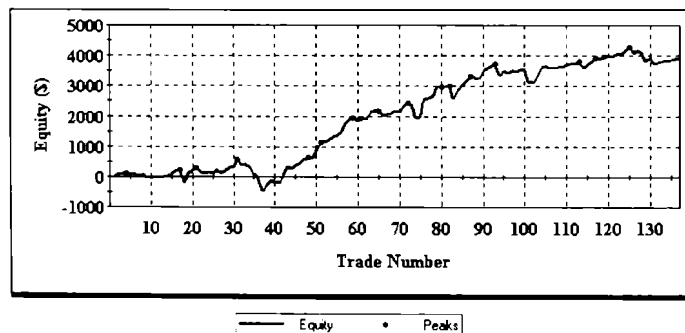
Chart created with TradeStation® 2000i by Omega Research, Inc.

These strategies, also occasionally referred to as scalping systems, are primarily designed to capture several small moves in the market throughout the trading day. A variety of technical indicators and other theories are used to generate these trading signals.

The equity curve resulting from this type of trading activity will usually be of a steadier nature than that which describes the historical behavior of the longer-term approach. This is a direct function of the fact that both the profitable trades and the losing trades arising from the short-term trading approach are closer in value than the trading results from the long-term method.

Figure 1.4 represents trading in eBay during a 30-day period ending October 27, 2000. Note that the Cluster System, a short-term day trading strategy, displays an equity curve showing a much smoother progression than the equity curve from the long-term day trading system in Figure 1.3. The system report from a one-minute chart of eBay trading 100 shares per position that was used to generate Figure 1.4 indicates that 67.88 percent of the trades were closed at a profit.

Unlike the long-term strategies discussed earlier, the objective for trades from this type of system is to take a series of small profits, usually entering and exiting several times through the trading day. This is in sharp contrast to the longer-term approaches that try to stay in a single position for most of the day, attempting to capture the big winning trade. To gain the edge necessary to have a net profitable result when using the shorter-term approach, it is usually necessary to build



**Figure 1.4** The Cluster System, as applied to a random 30-day period of eBay data, demonstrates the more consistent pattern of trading that can be expected from a shorter-term day trading strategy.

Chart created with TradeStation® 2000i by Omega Research, Inc.

a strategy that will generate a significantly higher percentage of winning trades than losing trades. Often, it is necessary for such a system to develop at least 65 percent winning trades in order to show a reasonable profit. This is also in sharp contrast to the longer-term approach, where one is often forced to accept a higher percentage of losers than winners.

When attempting to create a short-term, high-percentage-profitable trading method, there is a common pitfall that must judiciously be avoided. It is relatively simple to create a system with a high percentage of winning trades simply by using a stop loss strategy that places stop points a great distance from the entry point and by having a comparatively smaller, although reasonable, profit target. Systems can be created this way that will show over 90 percent winning trades. The difficulty is that the stop, being relatively large when compared to the profit target, can eat up the profits from a significant number of winning trades when it is hit. Although the testing of such a system can show a net profit over the testing period, a very slight change in market activity can create a situation resulting in only a few more losing trades than experienced during the testing period. This comparatively small change in market activity can result in a disastrous series of losses in real-time trading. Even though the testing of back data had shown the system to be profitable with a small profit target and a relatively large stop point, the slightest of changes in market activity can lead to a few large losses that can doom the system. Since these additional losses are fairly hefty, the net profitability of the system can suffer dramatically with the appearance of just a few additional losses.

## STOCK SELECTION

After working with both long-term and short-term day trading strategies for a period of time, you will soon become aware that certain stock issues respond more effectively to the long-term strategy while others seem to prefer the short-term approach.

Generally, the more active stocks with comparatively larger average daily ranges will be the issues that will be best traded by the longer-term approach. Those issues exhibiting narrower ranges and comparatively less volatility will more likely be candidates for the shorter-term approach.

It will be worth your while to spend a considerable amount of time selecting your favorite issues to trade using any day trading system you might eventually create. A wide variety of responses to different strategies will soon become apparent. Finding the proper issue or contract that fits your trading system and style will contribute greatly to your day trading success.

## **TRADER STYLE AND PERSONALITY**

The individual trading style and personality type of the trader certainly have an impact on the selection of an effective day trading strategy. Traders with a more aggressive trading style and personality will probably find the faster moving posture of a short-term strategy more appealing. Those with a more conservative style will prefer the longer-term strategy. The whole point here is that, when formulating your own day trading strategy, you must take into account more than the frequency of trades, stop placement, entry techniques, and so forth. If you are to indeed succeed in the day trading arena you must not only have a logical approach to trading, you must also be comfortable with the operation of the system on a day-to-day basis. If the pressure of trading a certain strategy that is incompatible with your ability to handle stress becomes such that your mental state is affected, it is just a matter of time until your trading results will be adversely impacted. Trades will be taken or not taken in accordance with mood swings, not the logical reasoning that created a good system.

Much has been written on the subject of trader psychology. Please be aware that this is a very important factor in the development and implementation of an effective day trading strategy and should not be taken lightly. I would certainly suggest that you carefully study the material published on this topic as you move through the process of creating a profitable approach to day trading.

## **BUILD YOUR OWN SYSTEM**

The simple indicators and trading methods that will be described in the remainder of this book can be used by the individual trader to either enhance your own already effective trading style or actually

build a sound strategy from the ground up. A short-term or long-term system, such as those discussed earlier, can be effectively created and managed using the methods you will learn as you work through the remaining material presented here. Application of these tools and strategies to shorter time frames such as one- or two-minute charts will create a more aggressive, short-term system that will generate several trades per day, depending on the volatility of the underlying issue. The same indicators and theories applied to a 5- or 30-minute chart of the same security or commodity contract will generate progressively fewer trades per day as the time frame involved increases. Additionally, on a chart of any time frame, individual settings for the commonly used indicators, applied as suggested later in this book, can also be altered to create varied frequencies of trading.

## CHAPTER REVIEW

1. Both long-term and short-term strategies exist within the general framework referred to as day trading.
2. Many parameters exist that further define these varying approaches.
3. Trader personality and individual trading style have a significant impact on the design and implementation of an effective trading strategy.
4. Principles and methods detailed in later chapters can be used to create a new trading system or enhance an existing methodology.

# 2

## WHY TRADERS LOSE

The fact that trader psychology is covered extensively in the print and electronic media certainly emphasizes the importance of this topic as it relates to the eventual success or failure of a trader.

In working with many traders over the years I have made several observations concerning what makes a good trader and what keeps very capable, intelligent people from becoming as successful in this enterprise as they have been in their other business and personal activities. I offer the following commentary not as criticism of these individuals, but rather as general observations on a perplexing situation.

During my involvement in production agriculture for many years I have had the opportunity to discuss and observe at length one of the most pervasive problems encountered by traders—fear and greed. Watching agricultural producers deal with commodity markets is indeed a study in human behavior. Nobody is more bullish at the top or more bearish at the bottom.

When the commodity market is rallying in the face of an extended

drought, everyone is absolutely certain that the market can do nothing but continue to move higher. So sure are producers that they will purchase a few contracts right at the top of the market before an overnight rain washes away all their potential to market a crop at a good price.

As the market drops precipitously to historical lows in the face of burdensome supplies, everyone is certain that no one ever again will have use for meat or grain and their whole inventory will be absolutely worthless in just a month or two. Everything is sold at the bottom of the market simply due to the fear of all producers' assets becoming worthless before the snow flies.

The same is true of many traders. Convinced that their current profitable position is certain to be the big trade that will wipe out all previous losses, these folks hang onto positions without regard to obvious market conditions that dictate the position should be liquidated. Their greed has become successful in clouding their judgment to the point that their tried-and-true trading system is ignored, usually leading to a losing trade.

On the opposite side, fear of taking even a small loss has doomed many a good trader. It's one thing to work on a system, observe its inherent drawdowns, and think to oneself, "Hey, I can handle that!" It's quite another when the bullets begin to fly and the palms become sweaty with the stomach approaching nausea. Many traders simply aren't able to handle losing any money at all and will liquidate their positions just from the fear that their condition might worsen.

Emotion is a fact of life that we all must deal with in one manner or another. Perhaps everyone does not have the psychological structure that is required to be a good stock or commodity trader. These individuals need to recognize this fact early on and perhaps realize that this is not the arena in which they should be operating.

One effective way to combat these emotional swings is to realize that trading must be treated as any other business venture, not as a game, a pastime, or other frivolous activity. All businesses have expenses and unforeseen problems that turn into business losses. Trading is no different.

### **SYSTEM-A-DAY-SAM**

I have worked with a significant number of traders who have spent an incredible amount of time, effort, and money on the development



of a trading system that makes sense from a trading standpoint and looks acceptable after being programmed and back-tested. Then it comes time to try the system in real time. After one or two losses it's time to completely revise the system that took months to develop. I have actually revised systems for traders almost on an hourly basis.

These traders can't stick with a strategy long enough to see whether it works. They will abandon a plan with one or two losses, even if the plan was formulated over years of data.

Traders constantly second-guess themselves when actually executing a trade. This is not the time to formulate a theory. This is the time to execute the trade before your hesitancy executes you. *Imperfect action is usually superior to perfect inaction.*

Do your thinking and question yourself during the formative stages of your system. There are two basic reasons for formation of an automated system. One is to be able to thoroughly back-test your strategy and confirm that your theories are indeed sound. The other, less recognizable reason is that you won't have to think about the trade that you are about to execute. You have done all the thinking and planning necessary for the trade long ago. Stopping and thinking about each trade as it comes up only leads you to second-guess yourself and wind up skipping trades that would have turned out to be profitable.

Not following systems is another habit that plagues many well-intentioned traders. The first thing they will try to do with a proven system is pick which trades to take. Trying to beat the system and prove yourself smarter than the program usually does not work.

Some traders, when they realize they are wrong, frequently attempt to talk themselves into thinking that the trade just has to come in their favor. As the position moves further and further into the red, they rationalize more and more reasons why they were really right—the market is just wrong so far today. It is much easier and more sensible just to pull the plug on a trade when it's obvious you are in trouble.

Don't beat yourself up after each loss. I know traders who, after a single \$150 loss, will abstain from trading for several days, perhaps weeks, staring at the screen. They watch the good trades go by with regularity, realizing with each one that they haven't picked up

the phone or clicked the mouse because of that silly \$150 loss several days ago, digging themselves ever deeper into their emotional trading hole.

Everybody makes mistakes. The most successful system traders rarely have over 50 percent winning trades. In fact, good traders can be successful being right only 30 to 40 percent of the time. On the other hand, traders can be net losers and win on 60 to 70 percent of their trades if they insist on fighting the market and absorbing huge trading losses.

One thing common to most successful traders is their ability to realize quickly they are wrong and cut their losses short.

Discussions with many traders reveal that the most successful of the group have patience, are disciplined, cut losses quickly, and win the game with singles and doubles, not home runs. These same individuals divulge that their biggest hindrances to being more profitable are the tendency to take profits too quickly and the inclination to get emotionally involved in the trade and therefore not cut losses quickly enough.

While trading 10 stocks on the same system, for example, a trader noticed he was becoming heavily short in the market and decided to skip the last few entries of the day, all on the short side, due to fear of too great an exposure on the short side in a market that's "always going up." As a result, this individual trader missed the three best positions of the 10 he should have initiated on that day. The market continued its slide for the next few days in a time of heavy earnings warnings filtering into the market as the Nasdaq went through one of its famous bloody sell-offs. Had the trader followed the system he had spent so much time developing, he would have been in good shape rather than looking at what might have been.

It's a lot different with real money.

Learn to like losses. As crazy as this statement seems, there is a significant amount of truth here. Many examples exist where small losses prevented much bigger ones from entering an account. Stop-outs are there for a purpose. Even the best system certainly takes its share of losses. Live with it.

Inability to pull the trigger is a huge problem with many traders. A trader I know is fond of relating an experience he had

when he first began trading a system in a trading room full of new traders. He had a view down a long desk with many traders examining quote and charting screens with papers scattered all over the desk. He vividly recounts looking down this row, observing one hand after another coming out, picking up the telephone, hesitating, and placing it back on the hook. The traders there simply couldn't pull the trigger, even when they knew their system was dictating a trade at the moment. If you have this psychological fault and are so afraid of losing money that you can't act, maybe this game isn't the one you should be playing.

Another guy I know brags to his friends and associates that he trades for a living but hasn't made a trade for over a year, although he gets up every day thinking that today will be the day he starts trading in a big, successful way. Once again: *Imperfect action is usually superior to perfect inaction.*

On the other hand, there are those who create many of their problems by overtrading. Many will double up on a system after a few successful trades. This type of activity carries with it the same problem as the greedy trader mentioned before. The actual time to do this is when the system is currently approaching its historical drawdown, not when it is approaching its best trading level of all time. Chart the performance of a system much as you would a stock or a commodity contract, noting the depth of each dip in the curve. When the system equity curve undergoes a correction and takes a few losses, that's probably the time to enter. Increase the number of contracts traded on each signal only when the current correction approaches the normal pullback previously experienced by the system equity curve.

Treat trading as a business. It's not a pastime. It is not a frivolous activity. It is not gambling. It is not the lottery (which in my opinion is nothing more than a tax on the mathematically challenged). Researched and formulated properly, a trading system can be a successful occupation. If you are not willing to take the time to thoroughly research and develop a sound theory and then implement it, you are just wasting your time and money.

It is hoped that the next several chapters will help you along your way to a happy and successful trading career.

**CHAPTER REVIEW**

1. Human emotions, especially fear and greed, often interfere with a successful trading career.
2. Increasing the confidence one has in a system often leads to more successful trading.
3. Learning to accept mistakes and losses is critical.
4. It is important to view trading as a business, not a pastime or frivolous activity.

# 3

## **PEOPLE, PRICES, PERSONALITIES, AND PROBABILITIES**

### **Why Technical Indicators Really Work**

Those new to technical analysis frequently ask how these seemingly abstract applications can be effective in the real world of trading stocks and commodities. This is a fair question for the beginner. After all, how can lines, dots, curves, and histograms placed on a bar chart, in what seems like a random fashion, possibly have any value in predicting future price movements?

There are two basic reasons why these trading tools work as well as they do: (1) They work because so many people use them; and (2) they work because, in effect, they are predicting the repetitive human behavior at work in the markets.

#### **PEOPLE AND PRICES**

Obviously, prices of stocks and commodities rise and fall as a direct result of the buying and selling that occurs every market day. Also obviously, the buying and selling is directed by the defined group of humans who actively trade the stock or commodity of interest. If

only we were able to forecast accurately what the next collective move of the group of people trading our favorite stock was going to be, we would have a distinct advantage in planning our own trading decisions.

In the most basic format, this is what the world of technical analysis does for each and every trader who is able to master the art of technical trading. Technical indicators often can predict, with a reasonable degree of certainty or probability, what the next major move made by the trading community is likely to be.

Later on we will work extensively with such common technical analysis techniques as stochastic, Relative Strength Index, Percent R, intraday highs and lows, and other simple calculations of intraday support and resistance. As mentioned, these and other technical tools work as well as they do because so many people use them in their trading routines. This approach, seemingly rather simplistic on the surface, has a basic fundamental foundation.

Although the concept that something should work well just because people use it does seem a bit foreign when you first think about it, there is some logic behind this statement. Perhaps an example will clear this up.

One popular support and resistance trading theory revolves around the breakout of a double top formation. A double top is defined as a point on a chart that has been reached twice recently and each time has been able to turn prices back lower. The breakout theory states that, if the factors responsible for market activity are strong enough to propel the price through this level represented by the double top, the forces responsible are probably of sufficient magnitude to cause the price to climb considerably higher. Traders familiar with this theory often place buy stops slightly above this double top price. Their reason for doing so is rather fundamental from a technical analysis point of view because, if prices break through this level, their buy stops will automatically place them in a long position. If the price continues to rise as a result of the breakout, their trade will soon be in a profitable position.

Think for a moment about what has just happened in our theoretical example. First the market broke through our double top due to strength in the market. As soon as the market breaks through this price level, more buying is uncovered as the buy stops (which become market orders when the stop price is hit) are activated. As you know,

increased buying causes prices to rise. The buying triggered by the buy stops thus propels the market even higher.

Let's say, for example, that 10 traders who are confident concerning the activity surrounding the breakout of a double top have placed buy orders above our theoretical double top, each for 100 shares of the stock. This results in buy orders for 1,000 shares, which could move the market a bit higher. But, what happens in our example if 200 traders each place orders at that level for 1,000 shares each? Few would argue that 200,000 buy orders at the same price level would cause the market to rise sharply.

In reality, our example of this many shares at one price is obviously an extreme. However, significant stop orders are placed every day around specific chart points of interest. Obviously, the number of shares or contracts that show up at these levels impacts directly on the market's reaction when these levels are reached. The more orders at a given level, the greater the market impact. As the number of people who believe in the double top breakout theory increase, the greater is the number of shares that accumulate at that price level, resulting in stronger market activity to the upside. Should the trades generated by our buy stop placement prove profitable, there is a high likelihood that the next time the opportunity presents itself there could be even more orders found at the point of the double top. Should our traders tell their friends, possibly more orders could show up. You get the point. The more people who use this theory, the more likely it is to work since the increased buying generated by the buy stops sends the market higher, and so forth. It becomes a self-fulfilling prophecy.

This phenomenon is expressed nearly daily in active markets. Closely observe the activity of a market when it begins to approach the high or low for the day, especially relatively early in the session. Experience has shown veteran traders that it is likely that there are stops accumulating above the day's high and below the day's low for the same reasons as in our hypothetical example. Knowing this, traders increase their buying activities near the high and their selling activities near the low in anticipation of increased market activity in the direction of the breakout should new highs or lows for the day be established on this move of the market. This is clearly an activity promoted by a significant number of people pursuing a strategy that has proven successful in the past.

## TECHNICAL VERSUS FUNDAMENTAL TRADING APPROACHES

Most people will agree that market fundamentals, such as earnings, sales, management, competition, and interest rates, are basic factors that will eventually determine the value of a company, and therefore the price of the stock of the company. It is certainly possible to analyze each of the fundamentals that will impact prices. In fact, traders who characterize themselves as fundamentalists carefully analyze each factor before making a buying or selling decision.

The technical trader takes a somewhat different approach to the buying or selling decision. With the fact in mind that all fundamental factors are eventually reflected in the prices of all commodities or stock issues, the technical trader, rather than painstakingly analyzing every bit of news that is available concerning a particular stock or commodity, works only with the price of the contract or issue in question.

In effect, technical analysis can be a rather lazy way to analyze the markets. Let the other guys do the grunt work of mulling over the data and deciding what effect it all may have on the price of the stock. It's a lot easier simply to mathematically analyze the market's reaction to fundamental news and take your positions accordingly.

In a sense, a price chart is nothing more than a graphical representation of all the human activity that takes place concerning the price of the stock or commodity in question. Thus the analysis of price patterns and calculations based on price movements are actually the application of mathematically calculated probabilities of the repetitive nature of human behavior.

Most will agree with the axiom "History repeats itself." In a sense, this is the basis for technical analysis since we are calculating the actual probability of certain events repeating themselves at regular intervals, thus creating trading opportunities for the astute technical trader.

Since price patterns are simply the representations of human behavior, as discussed earlier, and since people are basically creatures of habit, it is possible to mathematically project the result of this repetitive human behavior using the modern forms of technical analysis that are available to every trader today.

Thus we have established the premises for the usefulness of the strange-looking dots, lines, and squiggles placed on price charts by



various mathematical processes loosely grouped together and referred to as technical trading tools. They are effective simply because they are predicting the eventual behavior of the selected population of individuals who actually determine the value of the issue at hand by trading the stock or commodity.

## **EACH ISSUE HAS ITS OWN PERSONALITY**

Just as different individuals have their own separate personalities, each stock issue or commodity contract will also tend to exhibit its own character as it relates to specific price pattern behavior. After all, since the price behavior of a stock is determined by the finite group of people who trade the particular issue, the issue in question will take on the personality traits of the same group of traders.

As an example, let's examine one very simple market parameter, range expansion, and observe how several stock issues respond differently to the same market event.

One of the most basic, simple day trading techniques is trading the breakout of the early-morning range. In this system, one first determines the range in the early part of the day and then places a buy stop slightly above the high of the early range and also places a sell stop slightly below the low of the early range. When the market moves out of the early-morning range you are automatically in the market in the direction of the breakout as your stops are filled. Profits from such a strategy are usually taken at a specific target. The price objective at which the target is placed can be a specific dollar or point amount. Some traders also use a percentage of the previous day's range as a target objective for this type of trade. Others may prefer to take a longer-term approach either by holding the position to the end of the day or possibly by keeping the trade overnight.

Think about our early-morning range as we have defined it. What is the probability that this range will also be the range at the end of the trading session? Most will agree that this is a rather remote possibility in most cases. With the possible exception of a stock that makes its big run up or down on market-moving news early in the day, most daily ranges are established in stages throughout the trading day as successive new daily highs or lows are made by normal market activity.

The theory here is that the probability is quite high that the

range developed very early in the trading day will not be the final range of the day for the stock or commodity we happen to be trading. Secondly, we are expecting, after the early range is established, that any range expansion will occur on only one side of the market. In this instance, the opposite side of the early-morning trading range will be in place for the remainder of the day. In other words, the system capitalizes on the fact that the high or low of the day is established early in the day and the breakout of this early range in one direction or the other will be consistently profitable.

The obvious trick here is to determine at what point in time the stock or commodity has established either the high or the low for the day. It is this “personality trait,” the specific time at which we have the greatest chance of determining the final placement of the daily high or low, that we will examine in order to demonstrate the different behaviors of certain stock issues.

I have programmed a simple system based on early range expansion that I use at seminars and on my web site to demonstrate the operation of several self-adaptive programming techniques. I have used this system to analyze several stock issues to find the optimal time at which the high or low is to be determined to achieve the most profitable results for this simple theory. Those results are listed in Table 3.1. The number after each stock symbol represents a time at which the issue in question will have the highest probability of having established either the high or low for the day. Simply add this time, in minutes, to the time of the opening of the market. For example, the table suggests that only 15 minutes into the market day one could be reasonably confident that either the high or the low of the day for AFFX, AMAT, and AMGN has been established. At the other extreme, this table suggests that the same range determination for NOK should not be calculated until 90 minutes have elapsed since the opening of the market.

Note the wide variation in response times to our simple demonstration system in the table. This is a rather typical response that is found when the behavior of a group of issues is measured against a set market parameter. Analysis of the same group of stocks using many of the same routines we will examine later in this book will also return the same wide variation of results. Although we have measured only one “personality trait” of a selected group of issues, the data here is sufficient to demonstrate adequately the existence of a wide variety of “personalities” across a group of stocks.

**Table 3.1** Time after the Open for Probable Daily High or Low for Each Issue

AFFX	15	DCLK	22	NT	34	HGSI	44
AMAT	15	TXN	23	ADI	35	NTAP	45
AMGN	15	AXP	24	IBM	35	TER	45
QLGC	16	DISH	24	SEBL	35	YHOO	47
QCOM	16	GE	24	GLW	35	IMNX	48
SUNW	16	CMVT	27	COST	35	DNA	50
TMX	16	WCOM	27	LU	35	EXDS	52
BBY	17	MLNM	30	AIG	35	BGEN	52
VIGN	18	TERN	30	VRSN	37	MOT	52
CHKP	19	ADBE	31	PMCS	39	VTSS	52
ITWO	19	BRCM	32	BRCD	40	LVL	55
HWP	20	EMC	32	CSCO	40	MEDI	55
LXK	20	PSIX	32	INKT	40	EBAY	57
AA	21	INTC	33	RMBS	40	ALTR	62
NXTL	21	JDSU	33	CTXS	44	NOK	90

Although the table's data is included specifically to demonstrate the existence of wide variations in response to a single market factor, the implications of the presence of this phenomenon in the market have much wider ramifications to the systematic day trader.

Later in this book, in the Data Appendix, you will encounter a number of statistical tables that detail the times at which various stock issues actually break out of their respective early ranges. These tables also contain data referring to the number of times such breakouts are on the high or low side of the market and how far the average move is on each side of the breakout. Also, the tables will reveal the percentage of days from each issue during which there is no breakout of the early range and the percentage of days that break out on both sides of the early range. A program designed to screen a database and search for various tendencies created the material in the tables found in the Data Appendix. Please do not conflict the numbers in these later tables with the ones in Table 3.1. The table in this chapter reflects the time at which the issue in question will have the highest probability of having established either the high or the low for the day, not the eventual breakout that may or may not occur. The table in this chapter is an output of an automated day trading program utilizing self-adaptive parallel functions that looks at the market a bit differently than the

scanning program mentioned. The table here is presented simply as a demonstration of how various issues will respond quite differently when measured against an identical standard. These numbers are not meant to be used to create a day trading system. The information in later chapters and the numbers found in the Data Appendix are included to aid readers in the development of a highly accurate day trading system designed around each trader's specific trading style.

All system traders should be aware of the fact that not all issues will respond to their day trading strategies in the same fashion, as demonstrated. Most system traders will develop their individual trading styles based on observation of the price behavior of a relatively small number of issues or commodity contracts. The temptation is certainly present, after the strategy is developed and tested, to trade a larger portfolio with the same system. With this table of results in mind, it would certainly be advisable to test your system thoroughly against all issues on which you wish to trade. The traders' graveyard is littered with the remains of those who blindly assumed that their strategies could be applied with equal validity across a large portfolio after being tested on only a few selected issues.

Let's briefly examine some of the reasons that these demonstrated personality differences exist among most stock issues and commodity contracts.

An exchange-listed stock derives its personality from the specialist on the floor who directs the order flow for any specific issue. These issues therefore will be more consistent in their market behavior since one person has considerable influence on the trading of the stock.

On the other hand, stocks that are primarily traded through electronic means such as ECNs (electronic communication networks) may have multiple market makers dominating the trading of a particular issue at different times throughout the trading session. It naturally follows that these issues will have greater fluctuations in their trading patterns and thus display a more dynamic personality with respect to their chart patterns that are displayed.

## PROBABILITIES

Recall those advanced math courses in high school where we all had to calculate those boring probability equations? Remember how we

could predict the likelihood of rolling a pair of sixes with a pair of dice? What is the probability of dealing three aces in a row from a standard deck of cards? You'll recall that it is mathematically possible to make these predictions on a consistent basis. In all actuality, technical analysis of market activity is nothing more than the calculation of the probability of a defined series of events repeating itself time and again.

Exhaustion points that regularly occur at cycle tops and bottoms are good examples of these probability-type calculations.

## IT'S ALL ABOUT CONFIDENCE

The inability to "pull the trigger" and place orders in the marketplace has been the downfall of a multitude of what could have been good traders. Although other psychological factors certainly have a bearing on this problem, the lack of confidence on the part of a trader, in my opinion, is a huge factor in the inability to place proper trades at the proper time. If a trader is unsure of the validity of the current order, he or she is less likely to execute the trade. On the other hand, a trader with a high degree of confidence in the actual strategy that generated the order in question is much more likely to follow through with the actions necessary to complete the trade.

The trader who has done the proper research will have available the relative probabilities of all applicable trading strategies that are to be used in the daily trading routine. Therefore, at a glance, the trader will know that over a given period the trading signal in question has been correct 80 percent of the time in similar situations. Other routines that have been tested will show other probability percentages. The bottom line is that a trader, when presented with a given trading strategy as it develops during the day, will have a much greater confidence level of the trade becoming profitable if the probability percentage is in an acceptable range. It is not necessary to analyze the particular pattern in question each time it appears. With the confidence that arises from the availability of probability percentages the trader is able to take the proper actions to enter into what is likely to be a profitable trade.

This is really what technical analysis is all about. Proper research gives the trader a sound basis from which orders for profitable trades

can be placed. Having these factors in place prior to the actual trading session makes trading almost automatic. It is not necessary for the successful trader to question and rethink each strategy as it appears on the screen. Experienced traders, confident of their strategies, can simply place the proper orders with the expectation of a favorable result.

## CHAPTER REVIEW

1. Technical indicators work as they do because so many people use them to predict repetitive human behavior that eventually determines prices.
2. Each stock issue or commodity contract exhibits its own personality traits with respect to its response to technical trading strategies.
3. The response of each issue or contract can be measured and quantified as a probability percentage.
4. Probability factors can be significant in increasing the confidence level of individual traders.

# 4

## THE CONCEPT OF TREND EXHAUSTION

One thing is common to all markets—they go up and they go down. Before you snicker “Hey, no kidding!” stop and consider how useful it would be if one knew when a market was tired of moving higher and was about to turn and go lower for a while.

In many respects, markets are no different than people in their basic actions. After all, markets are created by people making buying and selling decisions. Markets, or people for that matter, rarely, if ever, move in the same direction for an extended period of time. After a bit they all become tired, or exhausted, of moving in the same direction so they turn and go the other way.

Think in terms of a basketball that is thrown into the air. Obviously, like a rising market, the ball cannot be expected to rise indefinitely. There will be a point at which the rise of both our basketball and our market will slow their respective ascents and begin to fall back in the other direction. When the turning point of the ascent nears, the upward momentum will begin to diminish and then cease altogether as the maximum point of the ascent is reached. At the time during this process when the market and the basketball begin to slow and therefore exhibit signs of exhaustion, the ball and the market are

still rising and the uptrend is still intact. However, both the rise of the ball and the trend are beginning, however imperceptibly, to show signs of exhaustion. The market and the ball have used most of their internal energy, and their trip higher is about to end. It is obvious to the casual observer that our basketball is slowing its ascent and will soon begin moving in the opposite direction. However, at this point the same casual observer would have a difficult time visually determining the approach of exhaustion in our rising market situation. The dynamics of our two hypothetical situations are obviously much different at this point.

Even though it may be difficult for the casual chart observer to note the market exhibiting signs of exhaustion, there are multiple methods by which trend exhaustion can be identified and measured.

Markets that are approaching these described exhausted conditions can also be referred to as being in an overbought or oversold condition. It is this overbought/oversold/exhaustion parameter that is measured by many of the popular oscillator-type indicators such as stochastic, RSI (Relative Strength Index), and Percent R, which are widely used by market traders. These tools are all designed specifically to identify market exhaustion and thus the short-term trend of the market. In Chapters 9, 11, and 12 a unique application of these popular tools will be described that will enable the trader to trade effectively in the direction of the major trend of the day.

The identification of the short-term trend of the market is arguably the most difficult task for the day trader. It is necessary to keep the long-term picture in mind, but it is also critical that the “noise,” or random movement, of the market be filtered out of the decision process.

As mentioned, this is not a simple task. For this reason we use multiple approaches to pinpoint exhaustion. The key to using these indicators for this purpose is to use all three of these tools in combination with each other as the charts are forming.

## **THE APPLICATION OF THE EXHAUSTION THEORY TO DAY TRADING**

As is the case with our utilization of oscillator-type indicators, I will be describing a use of a commonly observed market phenomenon—in



this case, exhaustion—in a manner that is a bit different than normally seen.

As with oscillator indicators, many traders attempt to use exhaustion principles as a tool to identify the top or bottom of a market. After the top is defined, they will attempt to establish a short position, preparing to profit from the decline they expect to materialize. Conversely, a long position is established when they are convinced that a progressing downtrend has become exhausted. If you are working in the environment of a sideways, directionless day, this strategy can be helpful. However, when attempting to apply this trading method to a trending market, be it either up or down, traders often find themselves once again swimming upstream against the major trend of the day.

Our four-step method of developing high-probability trades consists of:

1. Defining the major trend of the day.
2. Defining the minor trend within the dominant trend.
3. Defining the exact entry point for a highly accurate trade.
4. Defining a logical exit sequence.

It is in step number two of the process where the concept of trend exhaustion becomes a major player. After defining the dominant trend, we begin looking for corrections against the trend that we can use for entry in the direction of the major trend. We attempt to identify buying or selling windows on the charts by identifying the exhaustion phase of these corrective movements.

Logic tells us that when more than one method is used to identify the same situation, the likelihood is higher that a turning point has been identified. For this reason I recommend that you not rely solely upon a single exhaustion mode tool for the determination of the short-term trend. My research has shown that the concurrent use of multiple indicators dramatically increases the accuracy of this critical determination. In Chapter 6, devoted to the use of multiple settings of oscillator indicators, I will describe the use of several combinations of stochastic, Percent R, and RSI that can be used to identify accurately exhaustion points of these important market corrections in later chapters.

## CHAPTER REVIEW

1. Trend exhaustion is a common element of all markets, preceding the actual turn in market trends.
2. The identification of exhaustion is a vital concept that must be mastered.
3. Trend exhaustion information, as used by most traders, can lead to selling strong rallies and buying severe downtrends.
4. Later chapters will cover alternate methods of exhaustion identification that allow trading in the direction of the major trend of the day.

# 5

## CONVENTIONAL USE OF ONLINE INDICATORS

Many trading systems and indicators have been fabricated over the years using some of the popular, readily available, traditional technical trading tools. There have been volumes published on a myriad of methods by which these basic indicators can be used in various trading strategies. Most of these theories revolve around the conventional use of these items. Later on we will detail a more nonconventional approach to the effective use of these indicators in conjunction with the Directional Day Filter and simple support and resistance calculations. First, to form a foundation on which we will build later, let's quickly examine the more traditional uses of stochastic, Percent R, and Relative Strength Index.

All of these indicators are part of a family of trading tools collectively referred to as oscillators. They have received this designation due to the fact that their formulas do not allow their values to rise above a certain number, usually 100, or fall below another number, usually zero. Since the plots of these equations move back and forth between these extremes, or oscillate, they are collectively known as oscillator indicators.

When the value of any oscillator-type indicator approaches the

high end of its scale, the underlying market on which the indicator has been applied is conventionally deemed to be in an overbought condition. Such markets are expected soon to begin a downward corrective move. Conversely, oscillators that are approaching the lower levels of their limited range are said to be in oversold territory, the implication being that a rise in price is imminent. All of the oscillator-type indicators have popularly defined levels within their definitive ranges that are said to be important for trading purposes. Additionally, some of these tools consider other aspects, such as crossovers of various moving averages of their base values. When these occur in certain areas of their ranges, they are important considerations for the generation of actual trading signals. Since it is necessary to understand the conventional use of a trading tool before exploring our alternative application of the same indicator, we will now take a more detailed look at the conventional use of each indicator we will be using later in the book.

For the next several pages I will be using multiple charts to demonstrate the activity of each oscillator under varying market conditions. In order to point out the similarities as well as the differences between several approaches, I will be using data from a single stock issue, Comverse Technology, Inc. (CMVT). The charts are created using two-minute bar intervals to show easily an entire day on each chart in a limited space. Please be aware that these indicators and systems can be used on any market, any time frame. I am using the same market and the same time frame here to be able to make valid comparisons between the strategies examined in this chapter.

## STOCHASTIC

Stochastic, first developed by Dr. George C. Lane, is arguably the most popular technical indicator in use today. Having assisted many people in the development of trading strategies, I find that the stochastic approach is clearly the indicator most often used as the base from which to formulate an overall trading plan.

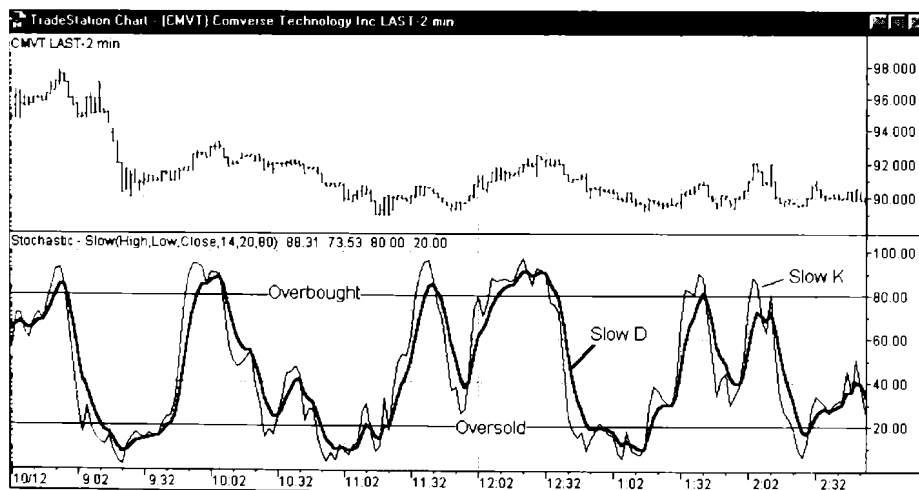
The principal theory of stochastic revolves around the tendency of closing prices to trend closer and closer to historical highs in an uptrending market and closer and closer to historical lows in a falling market. The stochastic function has one principal input that designates the number of bars over which the calculations will actually oc-

cur. This input is commonly referred to as the length input, as it designates the length of the period in question. It is this number that determines the historical highs and lows just referred to. These highs and lows are determined by the equations as the highest highs and lowest lows of the period defined by the length input. The calculations compare the relative positions of the most recent close to these extreme highs and lows. These raw values are then smoothed by simple moving averages to create the familiar plots of the stochastic indicator.

The classical interpretation for stochastic is to consider the market overbought when the stochastic values are above 80 and oversold when these values are at 20 or lower.

Figure 5.1 details the four main plots that make up the stochastic indicator as is conventionally applied. Note the overbought line at 80 and the oversold line at 20. The lines labeled Slow D and Slow K are the two moving averages of the raw stochastic values that actually create buy and sell signals from the 14-period slow stochastic plot shown in the chart.

Although these values are the ones popularly applied to the use



**Figure 5.1** The conventional interpretation of the stochastic oscillator recognizes the market as being overbought when the plots of the indicator rise above 80 and oversold when the values fall beneath 20. Several buying and selling routines can be formulated from the various crossovers occurring above and below these threshold points.

Chart created with TradeStation® 2000i by Omega Research, Inc.

of this indicator, many combinations of these variables are frequently used. For instance, one can give an upward or downward bias to a trading strategy by independently altering these overbought and oversold levels.

For example, let's say that a trader is expecting a falling market for the next several days, for any of a variety of reasons, either fundamental or technical. In this situation the trader would want to make it easier to enter a short position and more difficult to enter a long position. This can be accomplished in a variety of indicator input variations. For instance, the overbought and oversold lines can be manipulated. Lowering the overbought threshold from 80 to 65 or 70 increases the amount of overbought territory in which the system is allowed to enter a desired short position, thereby allowing considerably more latitude to select a selling point. One of the characteristics of a declining market is to exhibit relatively weak rallies. In this case, it is to the trader's advantage to sell these rallies easily by lowering the requirements for the identification of overbought segments. Lowering the overbought threshold accomplishes this purpose.

In a declining market we also would expect price declines to extend beyond the commonly observed levels. Any system increases profits by capturing the maximum amount of profit available from any price movement. We want to capture an increased portion of downtrends in a declining market. To accomplish this purpose the trader, in a downtrending market, will lower the oversold line from, say, 30 to 15 or 20. This forces the market to even lower levels before a buyback of the short position would be allowed under the system.

The opposite is obviously also true in the case of an anticipated rising market. In this case the oversold line is raised to allow the shallow corrections in a rallying market to trigger profitable entries in the direction of the major trend. Also, following the same theory as with the declining market, the overbought line is raised to allow the extended rallies expected in this type of market to grow to their full profit potential before profits are taken.

Obviously the optimum use of these varied settings for the overbought and oversold thresholds of the stochastic indicator is totally dependent on the identification of the dominant trend for the day or group of days being considered. This is the subject of Chapter 10, "Directional Day Filter."

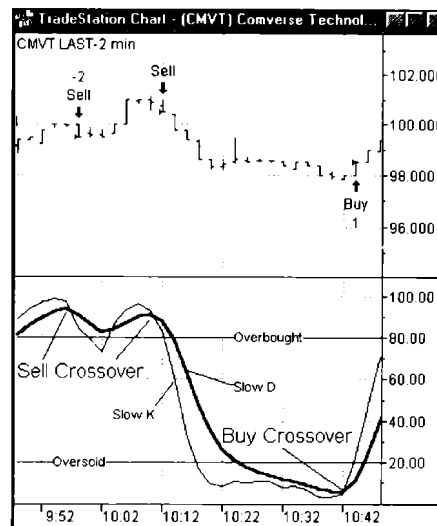
There are many variations in the use of stochastic, especially if

one varies the length input with the overbought and oversold levels. Unfortunately, these manipulations of stochastic inputs, even when combined with other common indicators and strategies, rarely result in a long-term profitable system.

In the remainder of this section we will use a basic stochastic crossover system to demonstrate the buy and sell points identified by the stochastic indicator. This system will use the standard slow stochastic 14-period indicator, with an overbought level of 80 and an oversold threshold at 20. Also, this system is set up as a reversal system with no exits other than the opposite signal. In other words, a long position can be exited only when a new short position is signaled, and a short position will be exited only on the arrival of a new long position. There are no stop loss levels used in this system. Additionally, to adequately demonstrate the accurate placement of all possible buy and sell signals as generated by this system, the strategy has been enabled to take all generated positions rather than a single position either long or short. Admittedly, it is quite unlikely that a system such as this one would actually be traded. It is constructed as it is here simply as a tool to point out more clearly the exact entries and exits as dictated by the stochastic indicator. In other words, don't try this at home.

Popular systems using the conventional stochastic interpretation issue sell orders when the Slow K line crosses below the Slow D line when both lines are above the overbought line. Buy orders are generated when the Slow K line crosses above the Slow D line when both are below the oversold line when the crossover occurs. For the most part, crossovers occurring between the overbought and oversold lines are ignored for the traditional interpretations of stochastic. There are multiple other strategies that utilize the basic stochastic indicator, including those that treat the 50 level, placed equidistant between the existing overbought and oversold lines, as a balance point attempting to issue buy and sell signals as the various lines cross back and forth across this level. This 50 percent line also finds occasional use as a reference point for stop and/or exit placement. Various other applications rely on divergence between price and stochastic or concentrate on trend lines from stochastic and basic price to generate buying and selling signals.

Figure 5.2 points out the principal characteristics of a typical buy signal and a typical sell signal as generated by a conventional stochastic crossover system. Note the sell signal when the Slow K line passes through the Slow D line after first rising above the Slow D.



**Figure 5.2** Classic stochastic sell signals arise as Slow K crosses below Slow D above the overbought line. Buy signals are generated when Slow K crosses above Slow D in the oversold area.

Chart created with TradeStation® 2000i by Omega Research, Inc.

Additionally, these levels must be at a chart level that is above the overbought line when this crossover occurs. Two successive sell signals are detailed on the chart. The appropriate crossovers are also labeled in the lower graph.

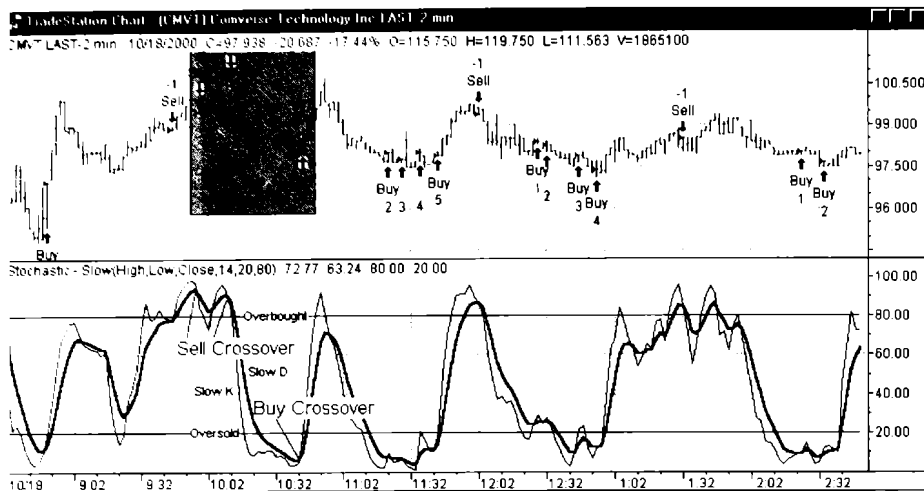
The single buy signal occurs when the Slow K line crosses up through the Slow D line after both lines are first located below the oversold line.

Figure 5.3 is an expansion of the Figure 5.2 chart showing all the trades generated from this system during the day in question. The signals used in Figure 5.2 are contained within the gray box in Figure 5.3.

The downward-pointing arrows signify the sell signals arising from the stochastic plots in the lower portion of the chart. Note that the arrows correspond with the specific line crossings on the stochastic indicator. The upward-pointing arrows identify the buying points as signaled by the 14-period slow stochastic indicator.

The chart is from a sideways day in the market for Comverse Technology Inc. (CMVT). Note that the price of the stock wandered within a \$4 range for the entire day after establishing its daily range only one and a half hours into the session. This is an unusually quiet





**Figure 5.3** Multiple signals may be issued when Slow K and Slow D are both above or below the threshold lines. The darkened box identifies the trades detailed in Figure 5.2.

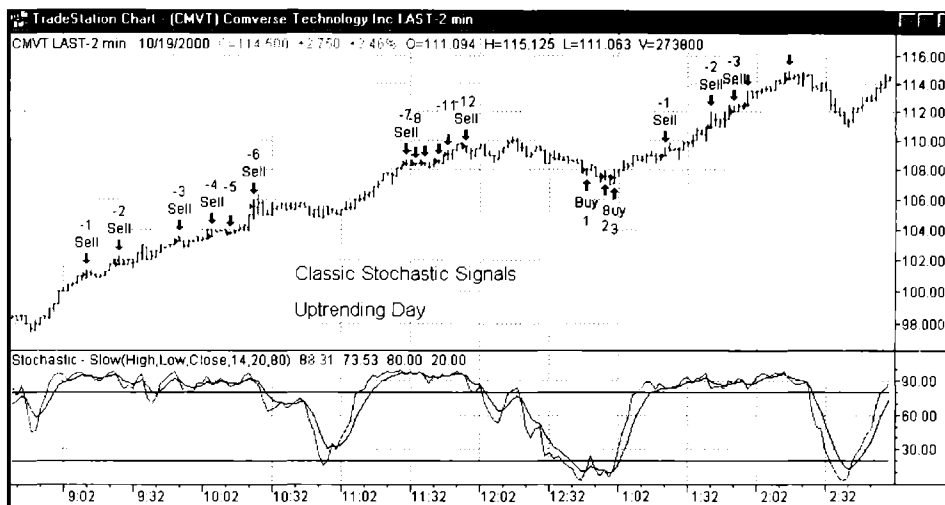
Chart created with TradeStation® 2000i by Omega Research, Inc.

day for this rather active issue. The 14-day slow stochastic was fairly successful in its identification of overbought and oversold areas on the chart, leading to several profitable buy and sell signals for the system.

Figure 5.4 shows the reaction of the system the next day when CMVT found itself in a pronounced uptrend for the majority of the session. The system used to generate the signals depicted here is the same system as used before, using identical parameters.

Note that, in sharp contrast to the previous chart, the same indicator-driven system had much less success issuing profitable trading signals on this trending day. In fact, the first 12 signals, all being shorting trades, would have had a difficult task turning much of a profit at all. Most reasonable stop loss strategies would have created losses for many of these 12 positions. Of particular note on this chart is the relative success of the system as it accurately identified excellent points for entry on the long side of the market on an up day. Note that the three buy signals issued just before 1:00 P.M. would have easily resulted in profitable trades using almost any exit strategy one would care to apply. In Chapter 10 we will describe in detail the use of the Directional Day Filter to identify this type of day early on, allowing our system to take only trades in the direction of the major trend of the day.

This chart painfully identifies the major weakness of most



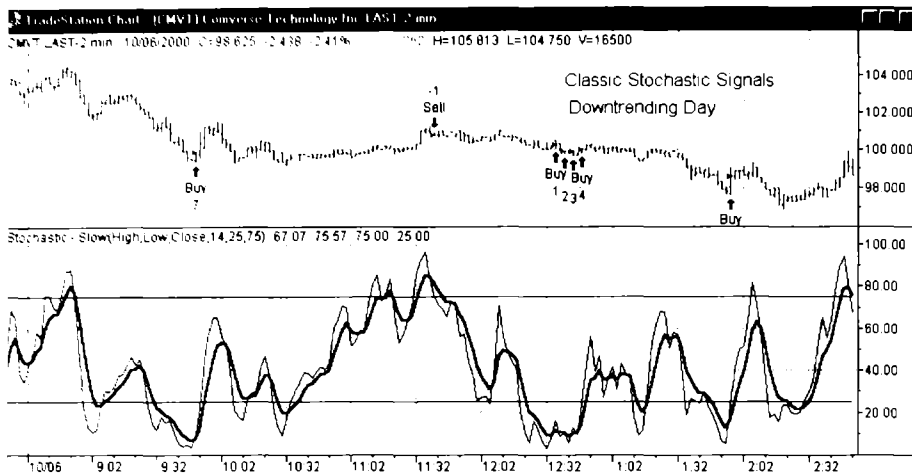
**Figure 5.4** Conventional interpretation of oscillator indicators can issue many signals against the major trend. In this illustration the strong rally is interpreted by stochastic as an overbought condition resulting in the generation of several unprofitable short trades. Note the profitable buy signals created as the mid- to late-day correction approaches exhaustion.

Chart created with TradeStation® 2000i by Omega Research, Inc.

oscillator-type indicators in trending markets. Oscillator indicators are by definition unable to exceed a peak value, in this case 100. In a strongly uptrending day such as this one where new highs are regularly being plotted, this limit is either closely approached or actually reached on a frequent basis. Therefore a system that receives its directions from an oscillator indicator such as this is easily tricked into identifying a strong market, such as the one depicted in Figure 5.4, as overbought. Subscribing to the overbought theory, the system then attempts to sell into the teeth of an extremely strong rally. The result is an unacceptable string of losing trades that would quickly discourage even the most seasoned trader and send him or her scurrying back to the drawing board in search of a more reliable trading approach.

Figure 5.5 illustrates the reaction of our demonstration system under market conditions that have created a mild, although persistent, downtrend for the day in question. This chart is of the same stock issue (CMVT) using the same two-minute data compression as before. This activity occurred a few days previous to the charts used earlier.

Note that although the initial buy signal issued by the system



**Figure 5.5** In this instance stochastic has identified a downtrending day as oversold, issuing buy signals that turn into losing trades. Note that once again the oscillator has properly identified the exhausted correction against the major downtrend, issuing a sell signal shortly before the noon hour.

Chart created with TradeStation® 2000i by Omega Research, Inc.

could have been exited for a small profit had one acted quickly, the remainder of the buy signals issued during what turned out to be a down day in the market would have in all probability resulted in losses for at least four of the last five entries. Again, as in the previous chart, note that our system has generated a trading signal that could have produced a significant gain. This short position could take a good profit much more easily than the other signals on this chart, as it is taken in the direction of the major trend of the day. The sell signal that was issued shortly after 11:30 A.M. came at the exhaustion point of the corrective rally, which occurred slightly past the halfway point of the trading session. In Chapter 10, we will identify strategies that will enable the trader to identify this trend early enough to profit from these types of trades while avoiding the losing trades on the buy side.

As mentioned before, staunch believers in oscillator trading have made, and will make again, vigorous attempts to create a profitable strategy from oscillator indicators by working with the variables involved. A long bias can be built into the system simply by raising both the overbought and oversold lines, thereby making it much easier for the system to buy than to sell. The opposite case can also be constructed,

making it easier to sell by lowering both lines. Unfortunately, building in a long or short bias will only make things worse when the system encounters a persistent trend opposite the built-in bias.

One can also vary the results of the system by altering the time compression of the underlying chart and making adjustments to the length input of the indicator, and ultimately the system. Unfortunately, none of these adjustments to the basic structure of an oscillator system can overcome the inherent weakness of such a strategy—the propensity to aggressively sell a rallying market and just as aggressively buy a rapidly falling market.

## RELATIVE STRENGTH INDEX

The Relative Strength Index (RSI), created by Welles Wilder many years ago, has stood the test of time and is still one of the most popular, widely used technical indicators available. Like the stochastic indicator discussed earlier, it is also an oscillator-type tool whose calculated values are restricted to the familiar zero to 100 range.

RSI differs from stochastic in that it attempts to measure the market more in relation to its recent movements rather than making its comparisons to the recent highs and lows. It measures market strength and weakness relative to its recent price activity—hence its name, Relative Strength Index. Being more front-weighted in its calculations, it can give a better velocity reading than other trading tools. Since the calculations of RSI are heavily dependent on only the absolute relative positions of the most recent close and the next most recent close, this indicator is less affected by sharp rises or drops in the price of the underlying security. Thus, RSI has the effect of filtering out some of the noise, or random price activity, in the underlying market.

Briefly, RSI is calculated first by comparing the most recent close to the previous closing price. If the price of the most recent close is higher than the preceding close, then the value of the close is added to the “up amount”; if it is lower, the “down amount” is incremented by the value of the recent close. The totals for the up days and down days are then averaged, using the length input for the averaging factor. The length input reflects the number of bars over which the RSI calculations are to be performed. The up day average is then divided by the down day average; the resulting relative strength (RS) average is used to arrive at the value for RSI.

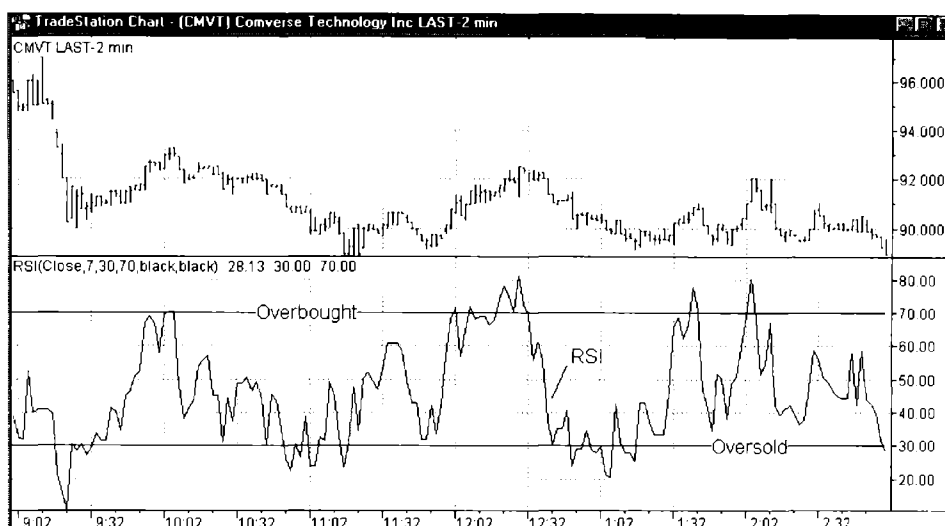
Most oscillator indicators will display increasing volatility in their plots as the length input is decreased, thus reaching the extremes of the 100-point range much more often. RSI seems to be more sensitive to these input changes than other similar trading tools. Therefore, since RSI is more sensitive to shorter length settings, traders may wish to concentrate on length inputs for this tool that are greater than 5 bars.

Those using varying settings of RSI to set their final trade entry parameters must realize the effect that a lower length input will have on their system. Many more trades will result from such use of an RSI indicator. Traders whose personal style dictates a more aggressive, frequent trading approach will find this RSI feature quite helpful. Although many more trades will be generated, it will be necessary to filter out a number of the trading signals to maintain the level of accuracy necessary to create a profitable strategy. One of the most effective methods to filter out such trades is to use multiple settings of the same indicator, using a slower setting as a qualifier of sorts. This concept is discussed in further detail in Chapter 6, "Multiple Indicator Sensitivity Settings."

Figure 5.6 illustrates the conventionally applied RSI indicator. This chart, for comparison purposes, is identical to Figure 5.1, the chart used to demonstrate the properties of the stochastic indicator in the previous section of this chapter. Note that in this case the overbought and oversold lines are placed at 70 and 30, respectively. Although this seems to be the most popular conventional setting, these lines may be varied up to 85 or down to 15 depending on the degree of sensitivity desired for the application at hand. This setting will vary considerably with the data compression of the underlying market, the length input being used, and the frequency of trade generation desired by the end user.

Note that a single line in this case represents the output of the RSI indicator as opposed to the two plots used by stochastic. Although this is the conventional application, it is also possible to plot varying lengths of the RSI indicator on the same chart and trade the crossovers of these two lines in much the same manner as was demonstrated with stochastic.

The usual interpretation of RSI is to generate a buy signal when the indicator first finds itself below the oversold line and then crosses above this line. The buy is taken at the point at which the line actually crosses above the oversold designation. Sell signals arise when the RSI crosses back below the overbought line after first passing into overbought territory. As with the sell signal, the order is placed



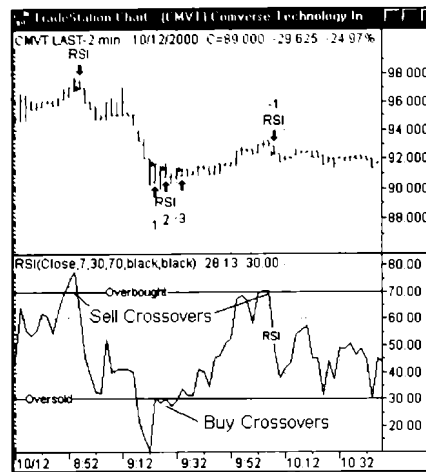
**Figure 5.6** Relative Strength Index issues trading signals in much the same manner as stochastic. Note in this case that the overbought threshold is placed at 70 while the oversold level is at 30, which is the more conventional placement of these lines.

Chart created with TradeStation® 2000i by Omega Research, Inc.

when the RSI actually crosses below the line representing the overbought threshold.

Again, for demonstration purposes, I am using an automated trading system that is designed to indicate exactly where the buy and sell signals are generated by our RSI indicator. Figure 5.7 illustrates the placement of these trades. Note that the downward-pointing arrow designating a sell signal appears just as the RSI plot, which has first risen into overbought territory, crosses below our overbought threshold line.

Three buy signals are created in a short period of time as the RSI plot wanders above and below the oversold line as the market is preparing for the next rally. Signals are actually given when the RSI line crosses above the oversold line after being in the oversold territory for at least one bar. Since, for demonstration purposes, our system is set to signal each buying opportunity that arises, several buys appear here in rapid succession. In reality, only one signal would be taken from this group for actual trading. Systems operating in their normal mode would issue a single buy order at this point. The numbers printed below the upward-pointing arrows identify successive signals on the chart.



**Figure 5.7** In our example, RSI issues a sell signal when the indicator plot crosses down through the overbought line and a buy signal when the plot crosses up through the oversold line. Arrows are placed on the price bars to further define the timing of these trades.

Chart created with TradeStation® 2000i by Omega Research, Inc.

Our automated system has issued the first two buy signals in this sequence from the appropriate crossovers that are not as apparent to the casual observer as the final crossover in the group of three. The fact that the first two crosses are not as evident as the last is of little consequence, though, because even those observing these chart patterns without the aid of a computerized system could still recognize the final triggering event and be able to enter the long position in time to realize a gain from this trade. Although this position would have been entered effectively, the point remains that even the most minor of crossovers are legitimate as valid entry signals.

This point is further emphasized by the next sell signal on our chart. Notice that the RSI plot does not venture far into overbought territory before turning south to generate a new short position. If one is to use these tools without the aid of an automated system, close observation is necessary for proper trade placement.

As before, no money management stops or trailing stops of any nature are included in the system. Also, the system is designed to take all trades generated and will often enter several consecutive trades in the same direction. Thus, a buy signal is created each time the RSI line crosses above the oversold threshold line, and a sell sig-

nal is created each time the line crosses below the overbought threshold. As before, this is a demonstration vehicle more than a system that would be actively traded.

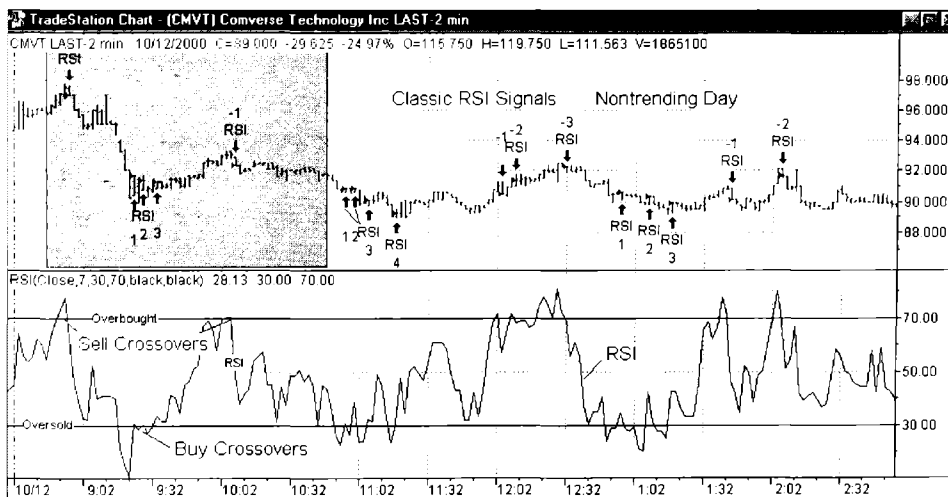
To demonstrate the behavior of the RSI-based system, we will use the identical chart that was used to demonstrate the same feature of the stochastic system.

Figure 5.8 displays the trading of this system for the day in question. The area of the chart used to detail the buy and sell signals in the preceding figure is highlighted by the gray rectangle.

Note the fairly accurate placement of the respective buy and sell signals on our chart. Since this was a relatively sideways day for CMVT, we would expect the signals from any oscillator-based system to be fairly accurate, as the plots of the indicator in question rarely run very far beyond the bounds placed by our overbought and oversold territories.

Figure 5.9 is a duplication of Figure 5.3, the October 18, 2000, chart of CMVT that was used to demonstrate the buy and sell signals generated from our stochastic system during a relatively trendless trading session.

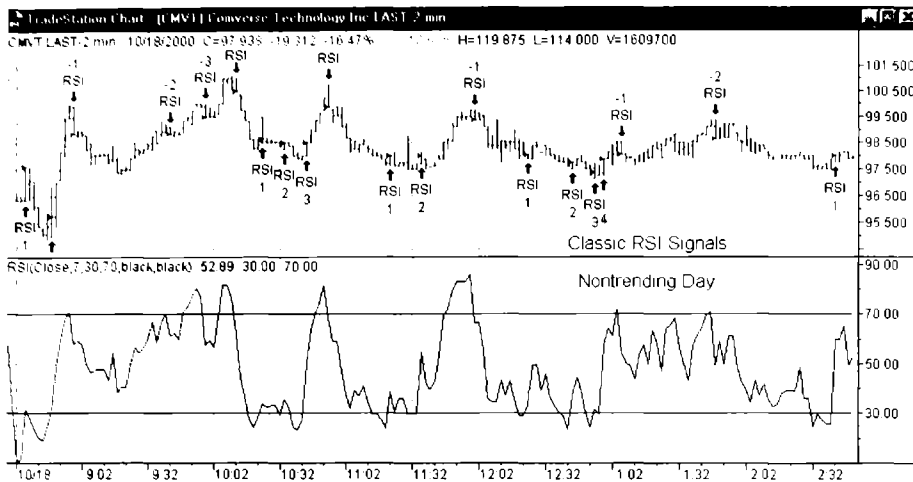
Comparing the two charts one will note that, although there are



**Figure 5.8** During relatively trendless days, oscillator indicators can be quite effective. Note the buy and sell signals issued on this chart courtesy of the RSI indicator.

Chart created with TradeStation® 2000i by Omega Research, Inc.





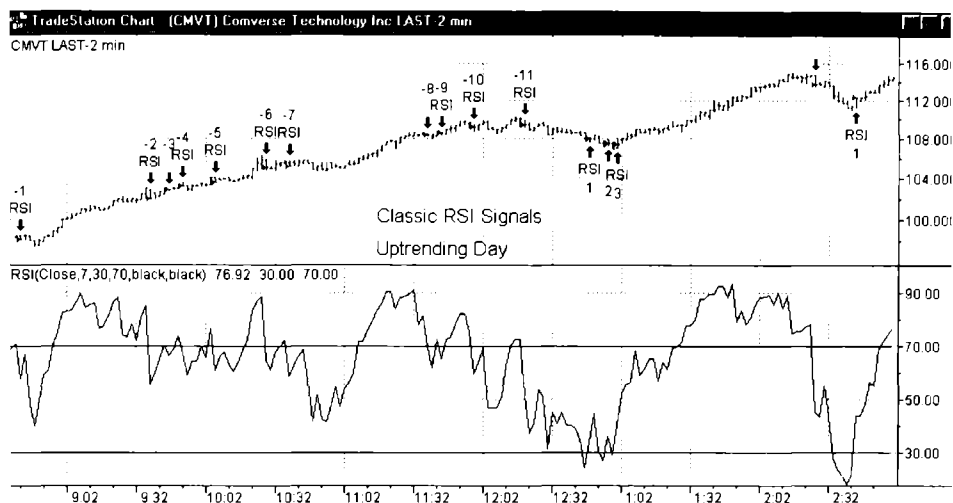
**Figure 5.9** The upward-pointing arrows on this chart define the placement of buy signals, while the down arrows designate selling points as taken by the RSI system. Once again note the relatively successful trades generated by an oscillator indicator on a sideways, trendless day.

Chart created with TradeStation® 2000i by Omega Research, Inc.

certainly some differences in the placement of buy and sell signals, generally the trades are appearing about as one would desire. Although some of the trades were entered a bit early on both the buy and sell sides of this market, most of the trades would have generated a positive result in a rather short period of time. Again the emphasis from both of these charts is to illustrate that, on such sideways, trendless days, oscillator-based systems can be relatively effective trading strategies.

Figure 5.10 demonstrates the activity of the identical system on an entirely different type of trading day.

Using the same uptrending chart from the trade in CMVT on October 19, 2000 (Figure 5.4), we again are able to observe the significant limitation of an oscillator system during a trending phase of the market. It would have been very difficult if not impossible to extract any kind of positive result from any of the first 11 trades generated on the sell side of an uptrending market. Conversely, note that again our system was able to identify an almost perfect series of entries at the conclusion of the market correction that occurred near the end of the noon hour. These trades, taken in the direction of the major trend of the day, are certainly preferable.



**Figure 5.10** The signals on the chart demonstrate the limitation of oscillators to give reliable trades during strongly trending days. Note also that the RSI system has successfully placed buy orders as the correction against the major trend is completed shortly before 1:00 P.M.

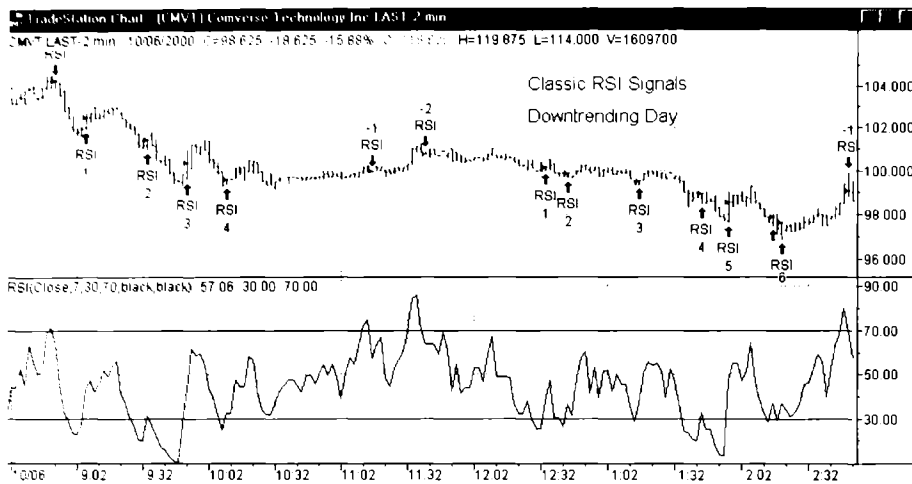
Chart created with TradeStation® 2000i by Omega Research, Inc.

Now let's look at the RSI system on a relatively downtrending day (see Figure 5.11). For purposes of comparison we will use the same chart that was used to demonstrate stochastic activity under the same conditions (Figure 5.5).

In much the same manner as the stochastic-based strategy, the RSI formula has identified several areas on the chart as being oversold. With this determination in place, buy signals are issued in an attempt to get on board an expected uptrend. Unfortunately for the system, there is a downtrend in place for most of the day that causes the system to take multiple losses from its long positions. Obviously, the short positions, taken in the direction of the major trend of the day, are able to extract significant profits from their designated entry points on the chart.

## PERCENT R

Percent R, developed by Larry Williams and first published in his 1979 book *How I Made One Million Dollars Last Year Trading Commodities*, remains one of the most popular oscillator indicators in use today. In what by now is a familiar pattern, this indicator also oscil-



**Figure 5.11** The RSI system once again demonstrates the effectiveness by which oscillator indicators are able to identify exhausted corrections within the major trend. Note the two sell signals issued during the 11:00 A.M. hour. Also note that the system persistently issues orders against the major trend as the oscillator is tricked into designating oversold areas on the chart.  
Chart created with TradeStation® 2000i by Omega Research, Inc.

lates its calculated value between zero, where the underlying market is considered to be oversold, and 100, which again represents an overbought condition.

Percent R simply compares the position of the current close to the range of the underlying issue for the previous number of bars as specified by the length input. If the close of the current bar is equal to the highest high of the number of bars back specified by the input, the Percent R reading is 100 percent. The indicator expects that any market that is approaching a historical high will have some difficulty continuing its uptrend as this level is reached, because this is a natural area of resistance. Hence, a chart in this position is considered to be overbought and ripe for a correction by the Percent R indicator.

Conversely, as the close of the current bar approaches the lowest low of the last number of specified bars, the Percent R reading approaches zero, where the chart is considered to be oversold.

Historical highs, as used by the Percent R indicator, are defined as the highest high of the last “length” input number of bars. Obviously this historical high will change frequently as time moves forward. The

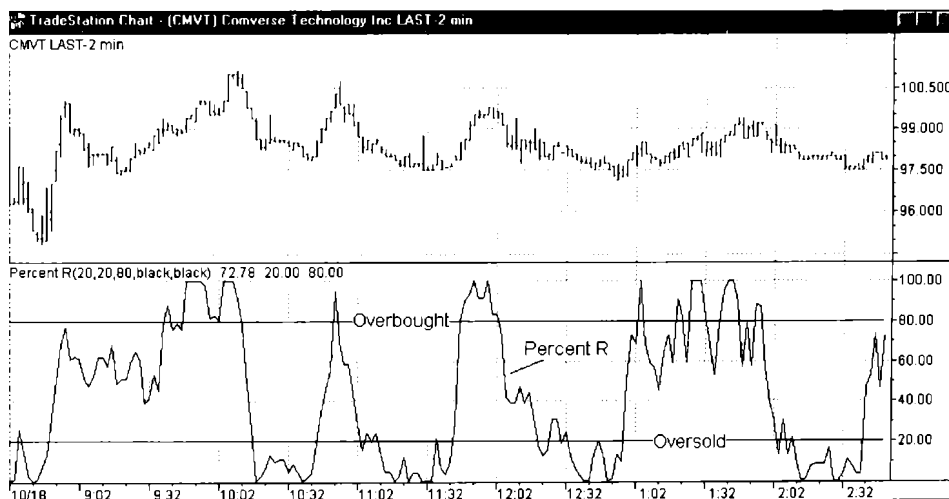
important concept is that the close of the current bar is being compared to rather recent highs and lows.

Similar to users of the stochastic tool, most users of this trading tool select the 80 percent level as the overbought threshold while considering any reading under 20 percent to be oversold.

Figure 5.12 illustrates the conventional plot of the Percent R oscillator indicator. For purposes of a meaningful comparison, we will use the same initial chart as was used for the same purpose for both stochastic and the Relative Strength Index.

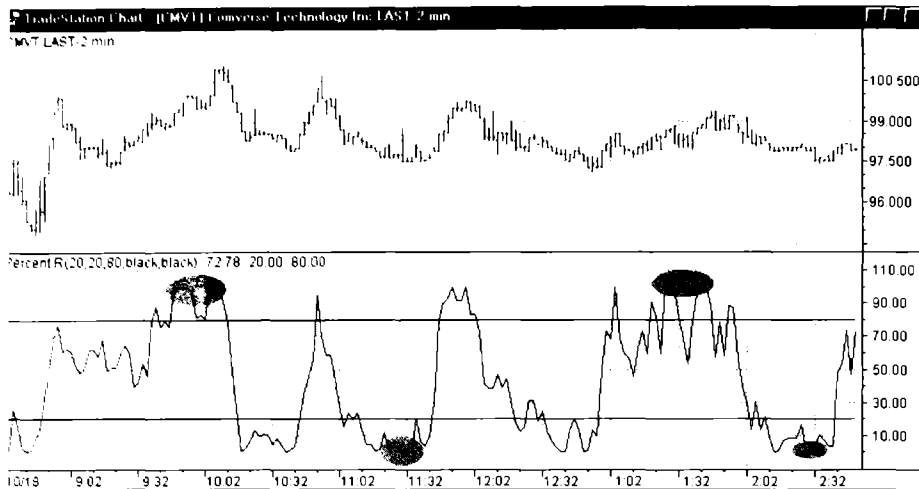
Once again we are presented with the familiar plot of the oscillator-type indicators below the price charts. There is one significant difference between the plot of this indicator and the other plots we have examined here. These differences are detailed in Figure 5.13.

Note the flat areas of the Percent R plot highlighted by gray ellipses. These points are commonly seen with this indicator when the price is making new highs for the period identified by the “length” input value. As the closing price makes its new highs it is also placing a new value for the highest high of the period in question, resulting in these new highs always registering a maximum reading of 100 percent for this point on the chart. These flat areas are seen only when the closes of the bars in this area are at the very high of the bar in an



**Figure 5.12** Percent R issues buy and sell signals in a fashion quite similar to stochastic and RSI.

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**Figure 5.13** The highlighted flat areas of the Percent R plot are no more significant than the points on the chart where the plot only touches the overbought or oversold extremes. One could easily mistake such a plot as being extremely overbought or oversold when, in actuality, market movements following these flat areas are of no greater magnitude than other signals from this indicator.

Chart created with TradeStation® 2000i by Omega Research, Inc.

overbought situation or at the low of the bar in an oversold area. Therefore the trader should avoid placing additional significance on these plateaulike areas. It would be easy to regard these areas as extremely oversold or overbought when the only real significance happens to be the fact that the close is at one extreme of the bar or the other. Rarely is the price activity following such a formation significantly different from a chart point that merely touched the 100 percent level. The opposite is also true during an extended down move to the 0 percent level as also highlighted on the chart.

There are two methods by which the Percent R formula can be used to generate actual buy and sell signals. They are quite similar; both obviously make use of the defined overbought and oversold zones as previously identified.

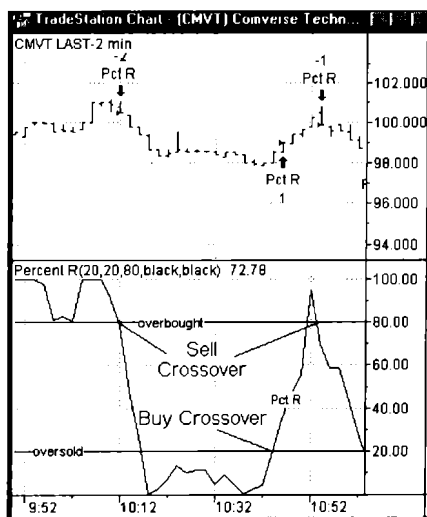
The first scenario waits for the indicator plot to completely max out at either 100 percent or 0 percent, depending on the individual situation. The signal to buy or sell is then given as soon as a bar closes off from the extreme level. For instance, a particular stock is identified as

oversold when the Percent R level touches the 0 percent line. As soon as any subsequent bar registers a reading greater than 0 the buy signal is immediately issued. Sell signals are created when the prices first generate a 100 percent reading and then give a value of less than 100 percent on any following bar.

The second method by which trading orders are created by Percent R is quite similar to the method used by the Relative Strength Indicator. Buy signals are created when the Percent R plot crosses above the oversold threshold, while sell signals are similarly given when the indicator plot passes through the overbought line on the way down from the higher zones on the chart. This is the more commonly used interpretation and is the scenario on which the trading system we will use to demonstrate the activity of the Percent R formula is based.

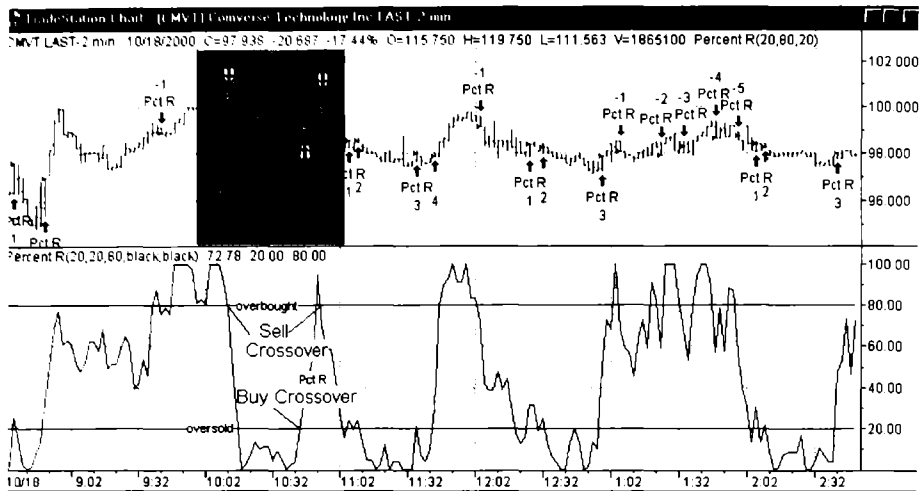
Figure 5.14 details specific buy and sell signals as generated by the Percent R oscillator. Paralleling the activity of the RSI system, the signals are generated as the Percent R plot crosses below the overbought line for a sell and above the oversold line for a buy.

Figure 5.15 shows this trading system on the same October 18, 2000, chart. This graph covers trading for the entire day. The gray box marks the portion of the chart detailed in Figure 5.14.



**Figure 5.14** Buy and sell signals from Percent R are issued as the indicator plot crosses below the oversold area or above the overbought area. Arrows on the actual price bars define precise entry points.

Chart created with TradeStation® 2000i by Omega Research, Inc.



**Figure 5.15** Percent R demonstrates its effectiveness during a sideways day. A length setting of 20 was used to generate these signals on a two-minute chart. Chart created with TradeStation® 2000i by Omega Research, Inc.

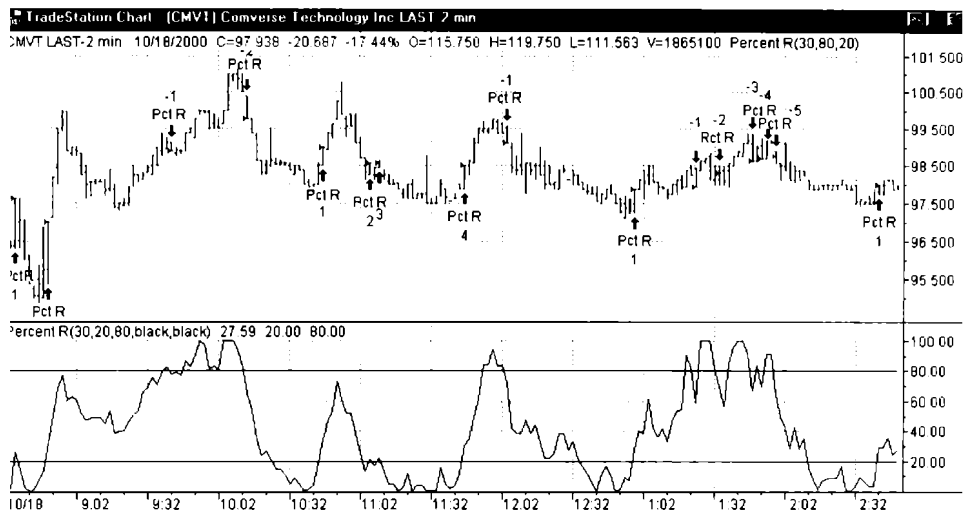
Although there are a few more signals generated by the Percent R formula, you will again notice that the signals generated by yet a third oscillator-type indicator are able to place buy and sell signals in a position from which a profit could have been taken from a significant number of entries. The system has given these trades from a length input of 20 bars. Increasing this value to 30 would have the effect of decreasing the sensitivity of the system, thereby reducing the number of trades and possibly improving trade placement.

Figure 5.16 reflects the changes in the trading pattern as the system input is changed from 20 to 30. Corresponding changes are also made on the accompanying indicator so that a valid comparison may be made.

Notice that there are indeed fewer trades placed by these parameters, in some cases resulting in more precise trade placement. Unfortunately, this setting has resulted in one of the better sell signals at approximately 11:00 A.M. not being generated.

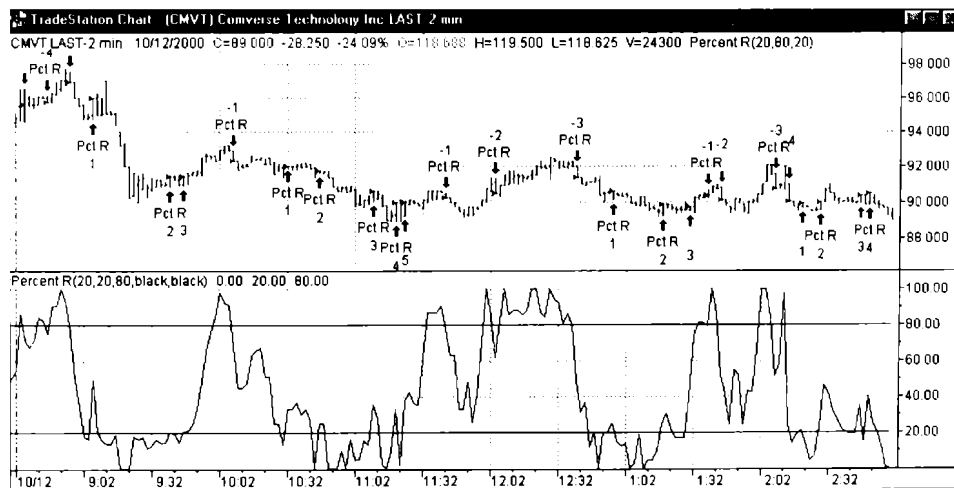
Again, for purposes of comparing data on the same chart, the chart from October 12, 2000, is reproduced as Figure 5.17, this time with the same Percent R system as used on the last two charts returning to the original length setting of 20.

Again note the relatively satisfactory performance of an oscillator-



**Figure 5.16** Changing the length input for the Percent R system from 20 to 30 significantly reduces the number of trades generated while also increasing accuracy of trade placement. Unfortunately, one of the better signals is lost with this setting.

Chart created with TradeStation® 2000i by Omega Research, Inc.



**Figure 5.17** Note the signals generated by the Percent R system with a length setting of 20 during a sideways-to-lower day.

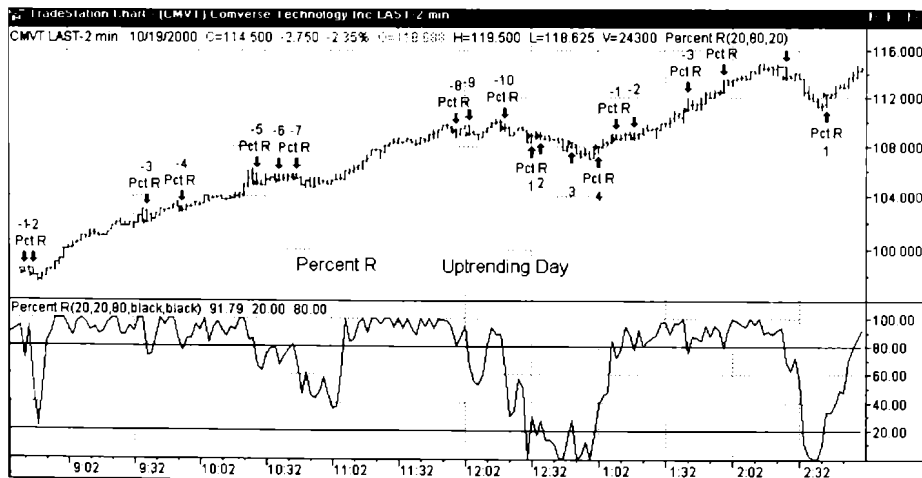
Chart created with TradeStation® 2000i by Omega Research, Inc.



type system on the chart after it settles into a sideways mode beginning around 9:15 A.M. When we use this chart again later in the book to demonstrate the activity of a further refined system, keep in mind that this day will be classified as a downward-trending day in the market. This definition will come from the Directional Day Filter and will specify that only trades from the short side should be taken. The buy signals from the system will be ignored on these days.

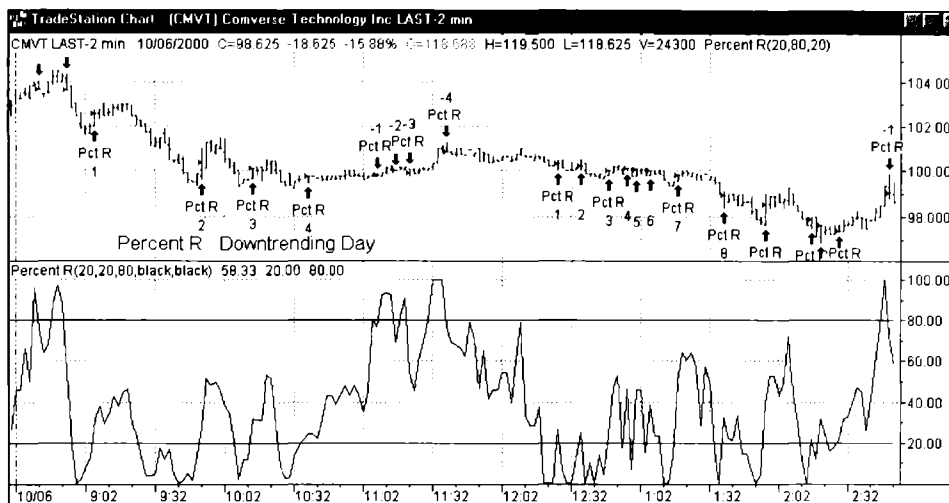
Figure 5.18 demonstrates the performance of the same system when it is applied to a trending day.

As with the two previous formulas, Percent R consistently identifies oversold areas in an uptrending market. Consistent with our system rules explained earlier, this overbought designation leads to the entry into a short trade. Since this trade is against the major trend of the day, most of the short positions shown would have resulted in losses. In his book, Larry Williams is adamant about using his indicator only when you have established the major trend of the time frame in which you are trading. This chart and the one that follows display ample evidence to further substantiate Mr. Williams' insistence on trading with the major trend. Note that the long positions established during the noon hour, this time in the direction of the major trend, would have in all probability become winning trades.



**Figure 5.18** Note the effectiveness of Percent R in identifying the proper entry point in the direction of the major trend.

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**Figure 5.19** In Chapter 10 you will learn to identify such days as these as downtrending days early in the trading session. Understanding the major trend will allow you to take only the sell signals from Percent R on a downtrending day and ignore the unprofitable buy signals.

Chart created with TradeStation® 2000i by Omega Research, Inc.

Figure 5.19 again uses the data from October 6, 2000, for CMVT. Here we demonstrate the activity of the identical Percent R system on a moderately downtrending day. Once again we see an oscillator-based system entering trades against the dominant trend. Note that the trades entered in the direction of the major trend, which is lower, would have generated profitable results.

## CHAPTER REVIEW

1. Oscillator indicators and systems driven by them can be quite effective on sideways, trendless days.
2. The major weakness of these tools is their overwhelming tendency to continually enter positions against the major trend on trending days.
3. Oscillators are very effective entry tools when they can be used to identify corrections in the major trend, thereby allowing a system to enter the market in the direction of the dominant trend.

# 6

## **MULTIPLE INDICATOR SENSITIVITY SETTINGS**

In the previous chapter several charts were presented showing the actual trading signals generated by the oscillator-type indicators that are the basis for a large portion of our trading strategy being developed in this book. A great number of buy and sell arrows were placed to demonstrate the accurate location of these points. Observing these charts it's obvious that there are many more signals generated by these formulas than would be practical for any reasonable trading program to use effectively. It is therefore necessary to filter out many of these generated signals, hopefully retaining the most profitable ones for use in our developing system.

One of the more effective techniques I have used to accomplish this task is the use of two rather diverse sensitivity settings for each indicator. It will frequently be noted that a relatively low sensitivity setting for an indicator will give buy or sell signals very quickly after the anticipated event has occurred. The problem here is that the signals are usually too great in number and will regularly occur well in advance of the significant high or low turning points we want to capture. Although selected signals generated by these settings are useful when observed on a historical chart, a method by which the inappropriate

trades can be discarded in real-time trading will be required in order to develop a profitable strategy.

On the other hand, the slower, less sensitive settings will usually be more effective in isolating the prime turning points in the market, but their formulas create the actual signal a few bars later than would be ideal.

Even though these delayed signals may be more accurately placed, the fact that they are a bit behind the prime market turning points causes our system to sacrifice several points of possible system profit. The trade-off then becomes one of trying to select the best of the numerous entries placed by the faster moving averages or being satisfied by the slower average signals, which admittedly will decrease the profit potential of the trade.

Combining these two diverse market measurements can increase the effectiveness of the entire process by utilizing both the quick action from the faster settings and the more accurate determinations from the slower settings.

Think of this again as a filtering process. We first look at the slow settings for our indicator, expecting, in the case of an anticipated buy signal, that the plot of the indicator will fall to a relatively low level prior to issuing a buy order. When the slow averages are in this low position, then, and only then, will we consider the activity of the faster average setting. By using the slower average to filter out the signals from the faster average we can gain the advantage of the accuracy of the slow average while still being able to use the quicker entry provided by the faster average. Another way to think about this concept is to consider the slower average as a qualifier of sorts. The situation does not qualify for a trade until the market gets itself into a favorable condition as defined by the slower indicator setting.

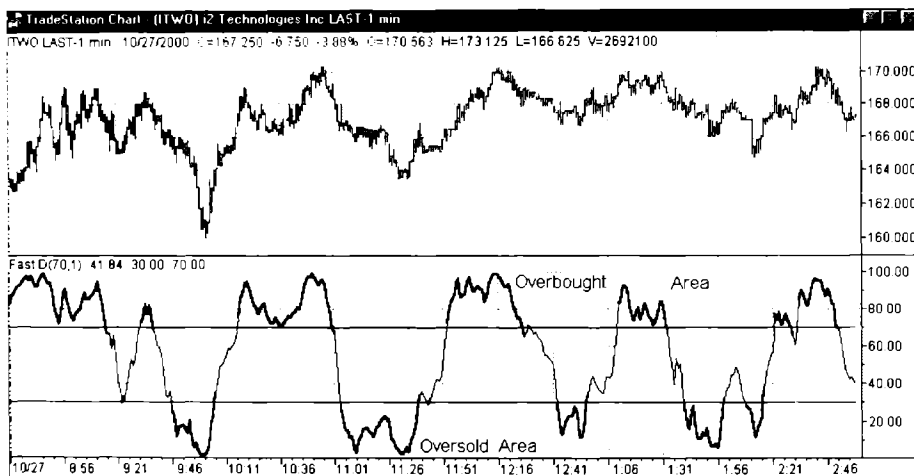
To take maximum advantage of this filtering process, it is usually preferable to utilize multiple overbought and oversold thresholds rather than single values for these levels. Using a wider overbought and oversold zone for the slower averages allows the qualifying plot a bit more latitude, therefore giving the faster moving average that actually triggers the trade increased opportunities to do so. Conversely, these situations seem to generate more accurate trades when a comparatively narrow range for these two critical values is used with the faster average.

Although this concept is obviously applicable to any oscillator in-

indicator, it seems to be a bit more effective with stochastic. For this reason we will utilize this indicator for the initial examination of this important filtering concept.

First, to illustrate the qualifier concept using an indicator with a relatively low sensitivity setting, we'll look at a chart of i2 Technologies Inc. (ITWO) during a relatively nontrending day (Figure 6.1). Applied to this chart is a 45-bar Fast D plot, one of the major components of most stochastic studies. The overbought and oversold levels are placed at 70 and 30, respectively.

In the lower graph in Figure 6.1 you will notice the plot of the Fast D indicator with a 45 sensitivity setting. Note that the plots are programmed to display a thicker line when the values for the indicator are below the oversold level or above the overbought level. The use of this particular configuration of the Fast D indicator would allow trades only in the areas where the line appears darker. Again, buys are taken only with the indicator in the oversold area and sells are allowed only when the indicator tells us the market is overbought. As



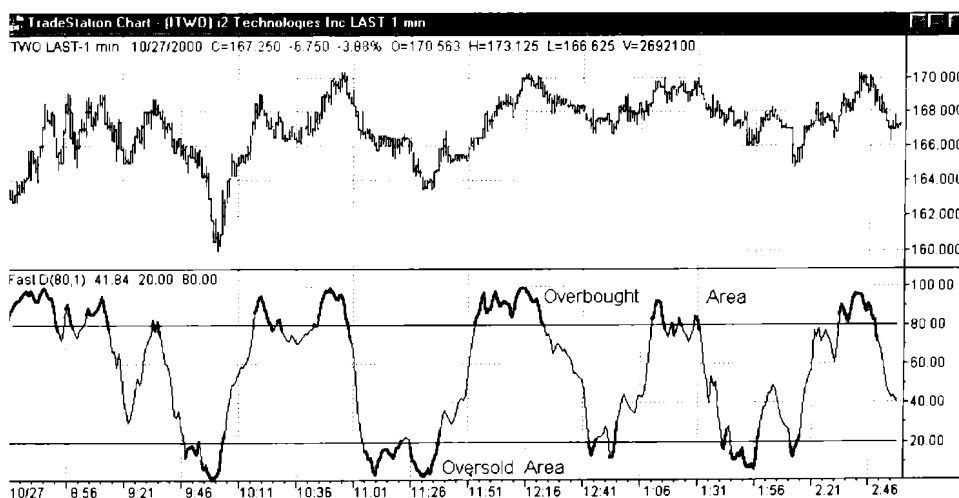
**Figure 6.1** The slow component of the dual stochastic indicator, a 45-period Fast D, is shown here with the overbought threshold at 70 and the oversold level at 30. Trades from the faster setting of this dual signal indicator can be taken only when the plot of the slower setting is in the area designated by the thicker black line.

Chart created with TradeStation® 2000i by Omega Research, Inc.

you can see, this setting of the indicator allows a fairly liberal amount of the chart to accept trades.

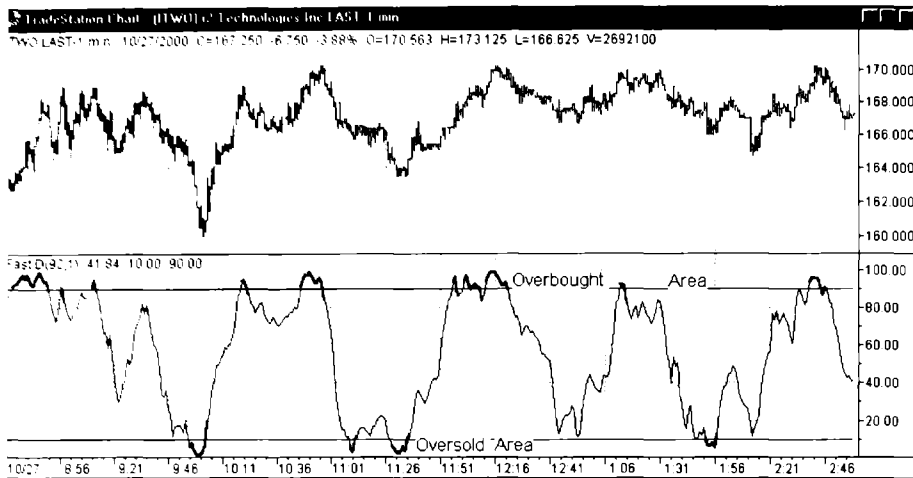
In Figure 6.2 we can see what happens when we change the overbought and oversold levels to 80 and 20. Note that the areas in which trades are now allowed has been rather significantly restricted when compared to the 70 and 30 settings used earlier. Now let's look at Figure 6.3, where the values are moved to 90 and 10. Incidentally, these are the settings we will be using for the faster moving plot of our indicator that will actually trigger the trades.

In this plot the areas where trades could be initiated have been restricted to points that are of little use for this demonstration. Looking at this chart one would be tempted simply to use this technique to actually place trades. However, recall that oscillator indicators work best on sideways days. Also recognize that this is an almost perfect sideways day, specifically chosen for the purpose of demonstrating the dual setting concept for the use of these indicators. Although the trades that could have been placed on this chart look good, be assured that this is not a consistent observation when



**Figure 6.2** The amount of time during which a trade may be generated is reduced significantly when the overbought threshold is raised to 80 and the oversold level is lowered to 20.

Chart created with TradeStation® 2000i by Omega Research, Inc.



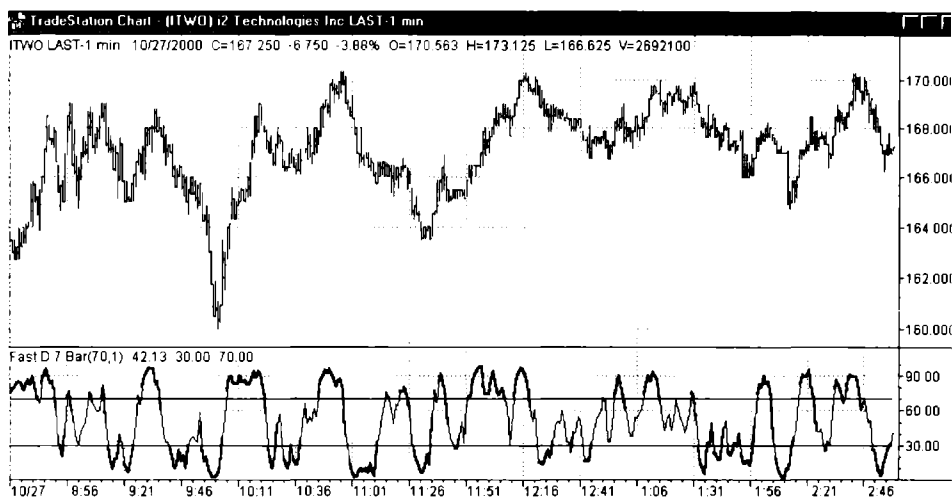
**Figure 6.3** Reducing the threshold area to the area above 90 for a sell and below 10 for a buy restricts trading possibilities to an almost useless level when the slow setting is used as shown here. These levels will be used effectively by the faster settings for the dual setting indicator.

Chart created with TradeStation® 2000i by Omega Research, Inc.

applied over a longer time frame where uptrending and downtrending days are also considered.

Now let's shift gears slightly and consider the faster component of our combination indicator. Figure 6.4 shows the seven-bar Fast D indicator on the same chart of i2 Technologies Inc. (ITWO).

The Fast D indicator as displayed with the seven-bar sensitivity is using the same 70 and 30 overbought and oversold thresholds. These levels are the same ones as were shown to be the most effective for the same indicator using the 45-bar sensitivity setting. When comparing this chart to previous charts used to demonstrate the activity of the slower indicator settings, you will notice that many of the same entry areas are identified. Also note that there are many more entry points selected, several of which appear to be far ahead of the ideal entry point. Also, when observing this chart, understand that the actual entry point generated from this routine will fall on the first bar whose data has caused the corresponding indicator to plot with a thicker line. Although the highlighted plots may indeed encompass several prime trading areas, careful observation



**Figure 6.4** The faster 7-period setting for Fast D using 70 and 30 thresholds generates far too many signals to be practical. Contrast the number of trades possible to those enabled by identical threshold levels applied to the 45-period setting in Figure 6.1.

Chart created with TradeStation® 2000i by Omega Research, Inc.

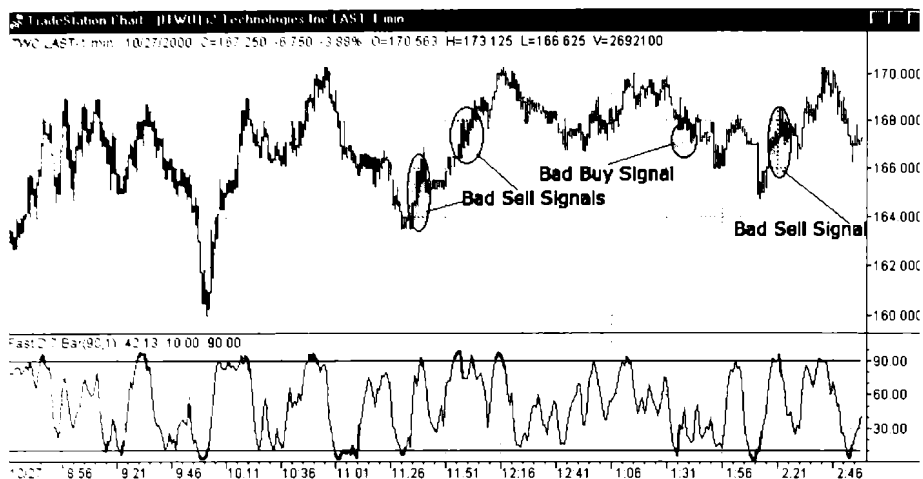
will reveal that the strategy using this approach would not be a practical trading tool.

Figure 6.5 shows the same situation with the exception that we will be using overbought and oversold thresholds at the 90 and 10 levels, respectively. You will initially notice that the areas of the chart that are now identified by our indicator as our prime trading points have been narrowed considerably. Still, close observation will easily pick out trades that would not contribute well to your bottom line, as labeled on the chart.

Now let's combine both of the indicator plots we have just examined in detail into a single graph and further describe the trading signals generated by this combination tool (See Figure 6.6).

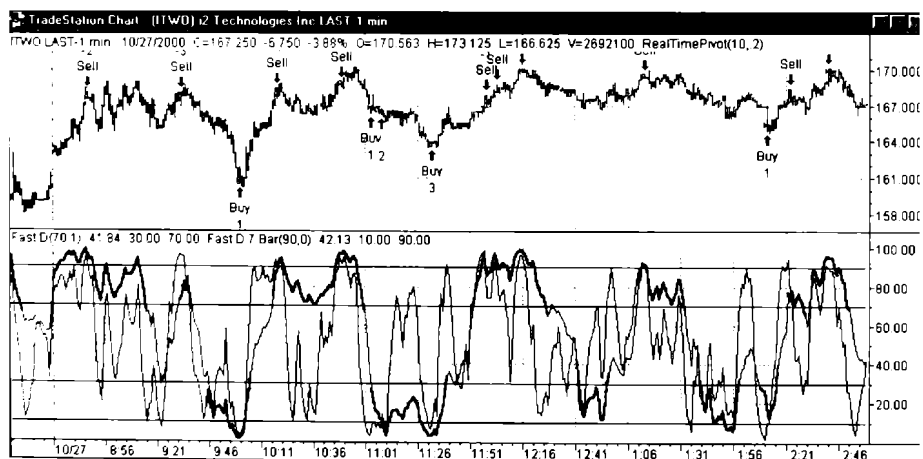
On this chart the heavy lines for the qualifying 45-bar Fast D indicator are left on the subgraph so as to identify more clearly the bars that are eligible for a trade signal. I have allowed the seven-bar sensitivity setting to plot a line consisting of a constant width to enable easier interpretation of the entire picture.





**Figure 6.5** Moving our threshold levels to 90 and 10 for the 7-period setting drastically reduces the number of trades initiated. However, as marked on the chart, several inappropriate signals are still given.

Chart created with TradeStation® 2000i by Omega Research, Inc.



**Figure 6.6** The slower 45-bar setting and the faster 7-bar setting are combined on the lower part of the graph. Trades can occur only when each plot satisfies specific parameters with respect to their individual threshold levels.

Chart created with TradeStation® 2000i by Omega Research, Inc.

The buy and sell arrows appearing on the chart identify the precise entry points for this demonstration trading system. They are generated by the following rules.

For a buy:

1. The Fast D plot with a 45-bar setting must be below 30.
2. The Fast D plot with a 7-bar setting must:  
Be below 10.  
Turn up on a closing basis while still below 10.

For a sell:

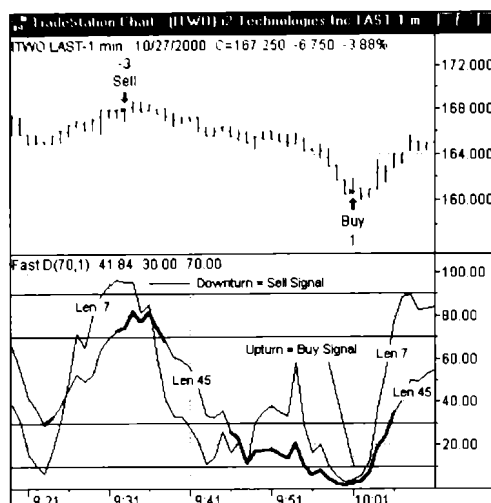
1. The Fast D plot with a 45-bar setting must be above 70.
2. The Fast D plot with a 7-bar setting must:  
Be above 90.  
Turn down on a closing basis while still above 90.

Figure 6.7 details the anatomy of a sell and a buy signal as generated by these trading rules.

Let's first examine the sell signal that appears on the chart. The first event that must occur is that the stochastic plot created with the 45-bar length must rise above the 70 level and remain there until a signal is completed. Again this plot is shown with a heavier line while it is above the 70 level and therefore in a position to qualify the trade. Secondly, the lighter tracing representing the stochastic using the seven-bar length must pass above the 90 level. Finally, this line must turn down on a closing basis for the short sale to be generated.

The buy signal is created in the same manner. First, the 45-bar length line must be below the 30 level. Next, the seven-bar length stochastic plot must pass below 10 and then turn up on a closing basis. The buy signal is placed on the chart after all three of these conditions are satisfied.

Note on Figure 6.7 that a considerable section of this chart has been qualified as a possible buying area by the 45-bar stochastic setting. In fact, the trader would have been alerted for a possible purchase beginning at 9:46 A.M. when the line passed below the 30 level. This buy window remains open until the line pulls up and out of the oversold range at 10:06 A.M. Simply looking for the 45 period plot line

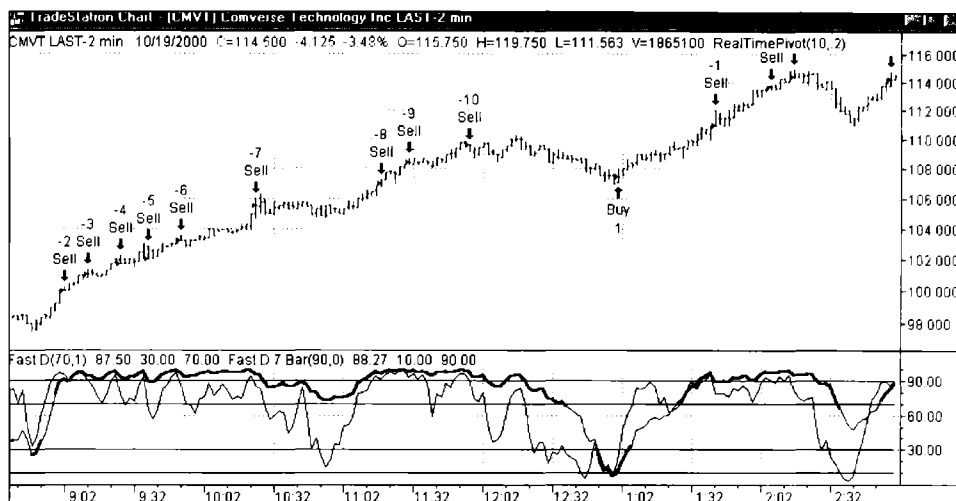


**Figure 6.7** Trading signals are generated by the dual oscillator routine when the slower setting is above or below its specific threshold, while the faster setting also exceeds its threshold levels and turns the opposite direction on a closing basis.

Chart created with TradeStation® 2000i by Omega Research, Inc.

to turn higher after dropping below the 30 threshold line would have generated buy signals well ahead of the prime entry point on several occasions. Waiting for the same line to cross back above the 30 threshold line would have resulted in an entry well past the best entry level. Our actual buying point resulted from the confluence of the prescribed actions of both stochastic plots. All of the buy and sell signals plotted on the chart that shows the entire day of trading (Figure 6.6) were generated in this manner. Using the two separate, diverse settings of our stochastic indicator allowed us in this case to make a long entry quite close to the low of the market drop.

Are all entries using this technique this accurate? Of course not. This particular chart was specifically chosen to demonstrate the three steps necessary to create these trading signals. As you recall from previous discussions, these groups of indicators work best on sideways days, of which this is one. Let's now look at this combination on a few trending days. Figure 6.8 is the same chart that we have used previously to illustrate system and indicator behavior on an uptrending day.

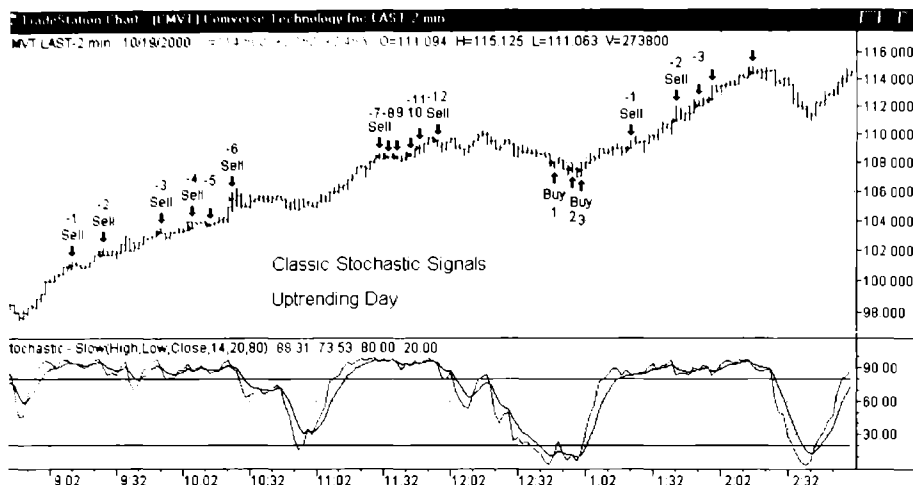


**Figure 6.8** Although the dual oscillator routine significantly reduces the number of trades and increases the accuracy of the trades taken in the direction of the major trend, the annoying proclivity of taking trades against the trend persists when oscillators are used as the only trade-generation strategy.

Chart created with TradeStation® 2000i by Omega Research, Inc.

As you will notice, even though we have incorporated two diverse indicator settings into our system, the system still persistently attempts to initiate short positions in a strongly rallying market. For easy comparison to the single stochastic response, the chart used previously for this purpose is duplicated as Figure 6.9.

Comparing the two charts it becomes evident that even though we are still generating unprofitable settings in a trending market we have been successful in decreasing the number of total signals generated. More importantly, the addition of the second indicator setting did not eliminate the excellent buy signal given at the conclusion of the 1:00 P.M. correction. This buy is the type of trade we are trying to capture with our final system. Any additional parameter additions along the way that would eliminate this signal could be counterproductive to the total effort. In this case we have eliminated several entries, thereby decreasing the number of factors that must be considered when actually trading our developing strategy. Our dual settings as applied here have done so without affecting signal placement accuracy.

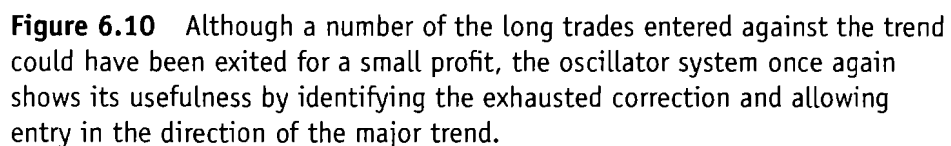


**Figure 6.9** The chart showing trade generation from a single parameter oscillator strategy is reprinted for comparison.

Chart created with TradeStation® 2000i by Omega Research, Inc.

Figure 6.10 shows our same dual stochastic system applied to our familiar chart used to illustrate a mild downtrend.

The dual setting approach in this instance has provided some improvement in trading this chart with a stochastic approach. Note that even though we are still consistently generating trades against the dominant trend, many of the initial long positions could have been exited with a modest profit to show for our efforts. This is due to the stochastic combination's relatively early recognition of the exhaustion phase of the sharp drops that make up the first third of the chart. In several cases the system is able to get in the market ahead of the corrective rallies that follow these sudden declines. Although this technique may have been profitable for those willing to enter multiple times for small profits, it is still a dangerous approach as we are trading against the major trend of the day. Note the accuracy of this method in trading with the trend as it isolates the nearly perfect entry point for the major decline that comprises the final half of the chart. We will use this chart again later to explain the use of support and resistance as an entry tool and to demonstrate the use of the Directional Day Filter as an aid in trading in the direction of the dominant trend.



TradeStation Chart - (ITWO) i2 Technologies Inc LAST: 1 min

TWO LAST: 1 min 10/27/2000 C=167.250 -6.750 -3.88% O=170.563 H=173.125 L=166.625 V=2692100

11 Sell -11 Sell -12 Sell -1 Sell Sell Buy Buy Sell Sell Buy 1 Sell

PctR Fast(50,95,1) 45 45 5.00 95.00

PctR Fast(75,90,1) 45 45 20.00 80.00

9.21 9.46 10.11 10.36 11.01 11.26 11.51 12.16 12.41 1.06 1.31 1.56 2.21 2.46

171.000 169.000 167.000 165.000 163.000 161.000 159.000 90.00 60.00 30.00 90.00 60.00 30.00

**Figure 6.11** Using a 50-bar Percent R for the fast setting and a 75-bar Percent R for the fast average resulted in the signals shown here. The two plots of the oscillator are printed separately to illustrate their interactions.

Chart created with TradeStation® 2000i by Omega Research, Inc.

The same tendencies are also the case for RSI and Percent R. Figure 6.11 shows dual settings of 50 and 75 used with Percent R on our sideways example day.

## CHAPTER REVIEW

1. Faster settings of oscillator indicators generate a greater number of signals, many of which are issued prior to major market turns.
2. Slower settings, while perhaps more accurate, tend to be a bit later than desired.
3. Dual settings of most oscillators, while improving the timing of trade entries, still persist in selling into rallies and buying into downtrends.





# 7

## **MARKET-DEFINED SUPPORT AND RESISTANCE CATEGORIES**

While there are several specific support and resistance chart formations, in this chapter we will specifically discuss Category 1, 2, and 3 support and resistance as they relate to the placement of both entry and exit stops.

### **IMPORTANCE**

Although we will deal with the use of support and resistance points in much greater detail later in this book, let's take a quick look at why it is important to understand this basic concept of chart pattern analysis. Briefly, these points are vitally important to our calculation and placement of buy and sell stops. Later we will detail the specific types of orders that we will use to both enter and exit the markets. For now, understand that the support and resistance points discussed here are used to generate exact entry and exit prices. Also, in selected instances, these points will be used to place trailing stops for exiting our trades.

The market itself creates support and resistance points by its own action. Therefore, when these points are violated, the market itself is

confirming a probable trend change. The violation of significant support and resistance is often the final confirmation of an important change in market trend and is often the prime entry point for our trades. The information that follows is of vital importance to logical, scientific chart analysis. For our trading purposes we will define three categories of support and three categories of resistance.

## STRUCTURE

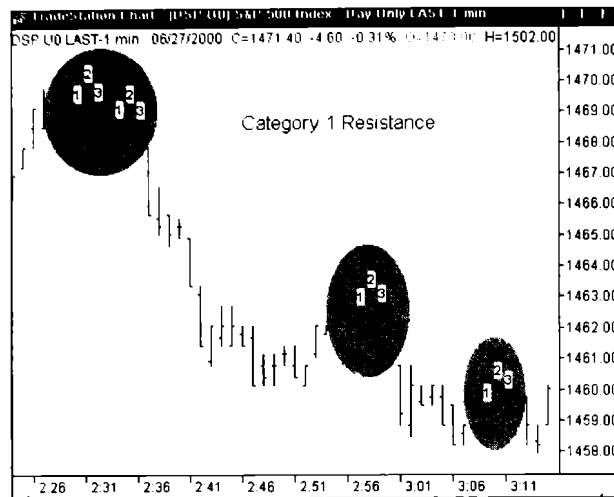
Each specific category of support and resistance derives its classification from the number of bars prior to and following the specific support or resistance point we are attempting to pinpoint on our price chart. For instance, Category 1 support requires that only one bar previous to and one bar following the support point in question have a higher low than the bar that actually marks our point of interest. Category 2 support requires that two bars previous and following have higher lows, while Category 3 support obviously requires three higher bars on each side of the point we are defining with our chart formation. We will now proceed to define more accurately each of our six critical chart formations. Let's begin our specific discussion of this vital concept with Category 1 support and resistance.

### Category 1 Support and Resistance

#### Resistance

To pinpoint this particular resistance level we must recognize two separate, simple patterns. First, the bar immediately *prior to* our resistance level must have its high lower than the high of the bar that is our Category 1 resistance level. Additionally, there must be a bar immediately *following* our resistance point whose high is lower than the high of the bar pinpointing Category 1 resistance. Obviously, the name "Category 1" is derived from the fact that only one bar before and one bar after the resistance point are required for its formation.

Examine Figure 7.1 for a chart example of Category 1 resistance. The series of gray ellipses on this chart designate the chart patterns we will discuss here.



**Figure 7.1** A Category 1 resistance point is defined as the high of a bar that has a bar on either side with a lower high. Several such formations are detailed on this chart.

Chart created with TradeStation® 2000i by Omega Research, Inc.

In the ellipse near the upper left corner of the chart there are two Category 1 resistance patterns. Note first of all that the resistance points in question are marked with a black dot that appears directly above the high of the highest bar in the three-bar formation. Note also that bar 2, whose high is the actual resistance point, has a high that is higher than the high of the bar immediately preceding and is higher than the high of the bar immediately following this bar. Thus, our three-bar resistance pattern is complete.

In each case of resistance formation as highlighted by the gray ellipses on the chart, the selling pressure from market participants was of sufficient significance to send the market lower. Focus initially on the first three-bar pattern of the first gray ellipse. Our formation begins as bar 1 opens slightly below the close of the previous bar and rallies sharply. This rally nearly erases all of the losses in the market recorded by the previous bar. Bar 2 opens sharply higher but runs into resistance as formed by the highs of two of the three previous bars. For a variety of reasons, either technical or fundamental, significant selling is taking place in the area of the high of bar 2 in our designated formation. The

selling pressure is great enough at this point not only to establish the high of bar 2 but also to limit the eventual high of bar 3. Bar 3 opens slightly lower than the close of bar 2 and then begins to trade higher. Selling pressure in the market dominates once again, driving bar 3 to a weak close near the low of the range of the entire bar.

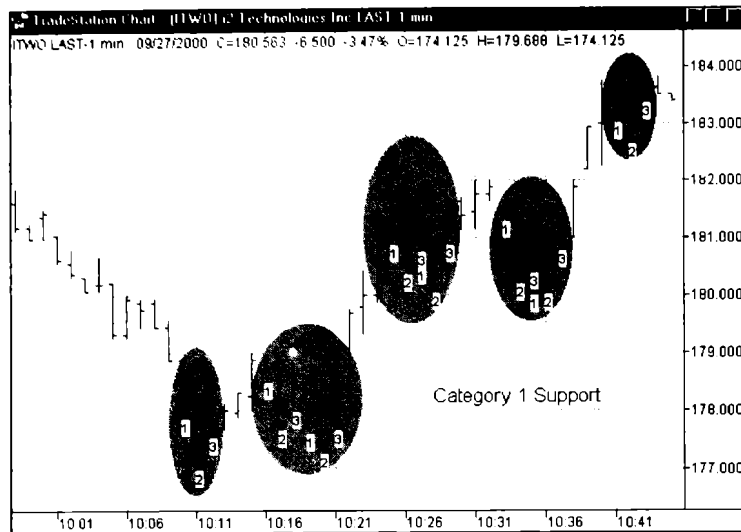
Note on the chart the manner in which the market respects these areas of resistance as the market trades lower for several minutes after the first two formations are completed. Also note the formation of a third resistance area as the market attempts a correction of the downtrend. The fourth formation, while still valid, comes near enough to the end of the day to be of little significance.

Note that the black dots above the bars clearly delineate successively lower resistance points above the market. The actual resistance point defined by this method is the high of the center bar of the formation, not the price level at which the dot appears. These points will prove to be vital in our assessment of both entry and exit points as our discussion of the actual placement of orders evolves in a later chapter.

## Support

Figure 7.2 represents several Category 1 support points as highlighted. Note that in each case the actual support point is marked by a small black dot immediately below the low of the bar. As was the case with Category 1 resistance, the bar of significance in this formation must be preceded and trailed by a bar with specific properties. In this case, the bar preceding the low bar of the formation must have a low that is higher than the low of the bar representing the actual low point of the support formation. Also, the bar following the low bar must have a higher low than the low bar. In each case in Figure 7.2 note that each bar in each formation is labeled, with bar 2 representing the pivotal bar in all formations.

The second, third, and fourth ellipses in the chart highlight areas made up of two Category 1 support areas that are merged into a multiple support formation. Note that in two cases bar 3 of the first formation also serves as bar 1 of the second formation in the set. Although these multiple Category 1 formations are a bit more difficult to recognize at first without the computer-enhanced charts shown in this figure, they are usually a more significant support pattern than a single such occurrence.



**Figure 7.2** Category 1 support is the opposite formation of Category 1 resistance, as the support point must be surrounded with single bars that display higher lows. These points are of significant importance as considerable buying must take place here to create these formations.

Chart created with TradeStation® 2000i by Omega Research, Inc.

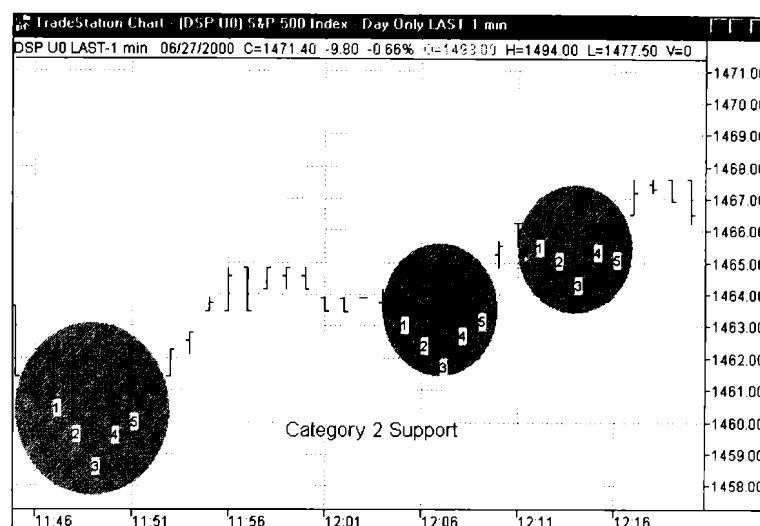
## Category 2 Support and Resistance

### Support

Category 2 support is simply defined as a low point on a chart where significant buying has been present for a period of time.

To pinpoint this particular support level we must recognize two separate, simple patterns. First, the two bars prior to our support level must have two lows that are higher than the low of the bar that is our Category 2 support level. Additionally, there must be two bars following our support point that have lows higher than the low of the bar pinpointing Category 2 support. Obviously, the name “Category 2” is derived from the fact that two bars before and after the support point are required for its formation.

Referring to Figure 7.3, first notice that each bar that makes up the chart pattern in question appears as a heavier bar. Additionally, the support point in this example is marked by a small black dot below the lowest bar that appears in the darkened ellipse on the chart.

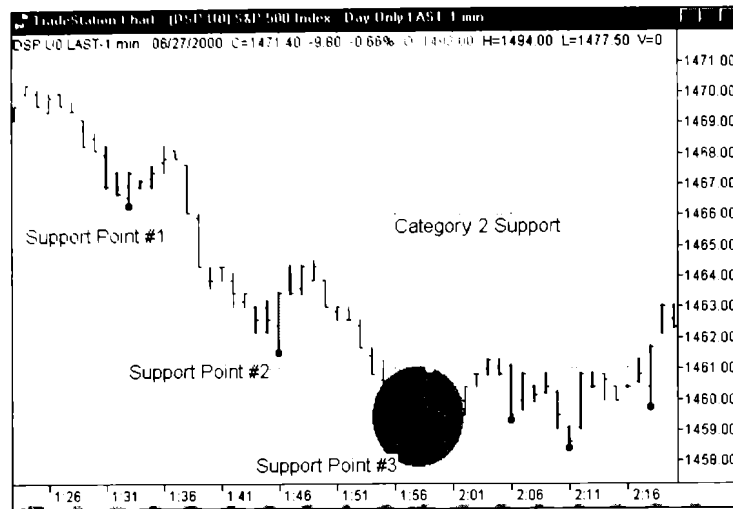


**Figure 7.3** Category 2 support is formed when the low of a bar is flanked on either side by bars that have higher lows. The low of bar 3 in each formation is the actual support point used for order or trailing stop placement.

Chart created with TradeStation® 2000i by Omega Research, Inc.

The value of the low of this bar will be used later to define precisely entry points for our trades. This bar is marked as the number 3 bar in this five-bar chart pattern. Also notice that bars 1 and 2, which appear prior to our support bar, both have lows that are higher than the low of bar number 3, our support bar. Next, observe that bars 4 and 5, which follow our support bar, also have lows that are higher than the low of bar 3. This is all that is necessary to complete the formation of a Category 2 support point. Incidentally, you may notice that, on two of the formations, bars 1 and 2 as well as bars 4 and 5 have highs that are also higher than bar number 3. Although this will often be the case, these higher highs are not necessary for the completion of our supportive chart pattern.

To illustrate this point, refer to Figure 7.4, which displays several additional Category 2 support patterns. Note that, in the highlighted pattern labeled Support Point #3, the high of the support bar is greater than or equal to all but one of the bars in the five-bar chart pattern. Obviously, the low of the support bar is below all other lows in the pattern, thus qualifying this pattern as Category 2 support. The emphasis here is to illustrate that this type of pattern is as valid



**Figure 7.4** Support points such as these are used for the placement of stops to enter the market. Note the acceleration in market movement that occurs when the first two support points are violated. Sell stops placed at the level of points #1 and #2 allow the trader to enter the market automatically when these accelerations begin.

Chart created with TradeStation® 2000i by Omega Research, Inc.

as the pattern in Figure 7.3 in which the highs of the preceding and following bars were also higher than the high of the support bar. Although you will observe many more support areas that resemble the pattern in Figure 7.3, be aware that both illustrations of Category 2 support demonstrated in these two figures are equally important when support is to be measured on any bar chart.

Incidentally, you will notice on both Figures 7.3 and 7.4 that the highlighted Category 2 support patterns are followed in relatively short succession by additional identical chart formations. You will observe this sequence quite often when you begin to assess support and resistance as a significant segment of your routine chart analysis. Several such patterns in close proximity such as illustrated in the accompanying figures without an intervening resistance point should be viewed by the chart analyst as additional evidence that major support is developing in this area of the market. Recalling our discussion in Chapter 3, “People, Prices, Personalities, and Probabilities,” concerning the market forces that actually cause support and resistance areas to develop

on price charts, you will immediately realize that the appearance of multiple Category 2 support areas in a relatively short time span is further evidence of a predominance of buying pressure at a particular price level. Thus, with additional evidence of greater demand at a given price level, the trader will have increased confidence that a significant support level is present. On the other hand, and more important for our trading purposes, should market forces eventually break this support, an additional acceleration to the downside should be expected.

Although this subject will be covered in considerable detail later in this book, there are two formations on Figure 7.4 that are significant with regard to the use of these support points.

Note the first two support points on this chart, labeled Support Point #1 and Support Point #2. Shortly after these points were established by market action the market traded sharply through these levels. If these points are supposed to be supportive, why are they important if the market moved through them so easily?

The answer is that, since we have determined that these are indeed significant support points, the movement of the market through these points is an event worth noting for our trading purposes. The trick is to place a sell stop below these critical support points to give us an automatic entry into the market in the event these levels are violated. This is a very powerful concept when combined with information gleaned from the Directional Day Filter and the correct interpretation of the signals from our commonly used oscillator indicators. Much more on this later.

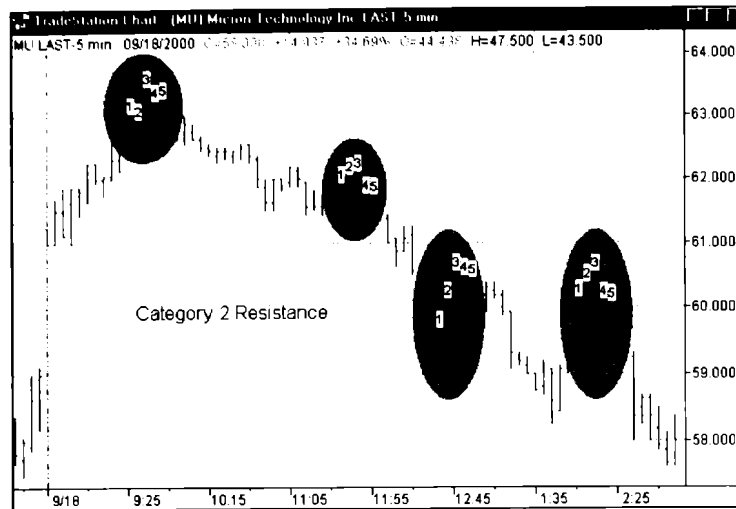
## Resistance

As you might expect, Category 2 resistance is formed in much the same manner as Category 2 support. The only difference is that, when defining resistance above the market, we are considering the highs of the bars in the chart pattern rather than the lows.

To form a Category 2 resistance pattern, first the two bars prior to our resistance level must have two highs that are lower than the high of the bar that is our Category 2 resistance level. Additionally, the two bars following our resistance point also must have highs that are lower than the high of the bar pinpointing Category 2 resistance.

An example of this type of formation can be found in Figure 7.5. Note the formation highlighted by the gray ellipse near the upper left corner of the chart.





**Figure 7.5** Category 2 resistance is completed when two bars on either side of the pivotal bar appear with lower highs. Obviously, these plots are not available for use until these two final bars are finished. Note how, in this case of a falling market, these resistance points can be used for the placement of a trailing stop to protect profits from a short position.

Chart created with TradeStation® 2000i by Omega Research, Inc.

Again, as with the Category 1 resistance pattern discussed previously, the high that marks the level of resistance on the formation is found on the center bar of the group, in this case the high of bar 3. The point of interest is also marked by a black dot above the bar. Note that bars 1 and 2, which precede bar 3, both have highs that are lower than the high of bar 3. Also, the highs of bars 4 and 5, which complete the pattern, are lower than the high of bar 3. Although similar patterns appearing later on this chart have slightly different structures, the primary feature of the center bar of the group of five bars plotting the highest high of the group can be observed in all instances shown here. The third resistance area highlighted on the chart shows a more symmetrical pattern than the first two patterns. In this formation you will note that bar 2 has a higher high than bar 1 and bar 4 has a higher high than bar 5, thus contributing to the relatively greater symmetry of this bar sequence. Although the more symmetrical formations may be more easily recognized at first glance, it is important to note that all patterns shown have equal validity as they relate to our primary purpose, which is to define accurate resistance points on any price chart. The significance of the

formation remains the same regardless of the relative positions of the highs of bars 1 and 2 to each other. The same fact holds for bars 4 and 5. The critical property of this formation is that two bars on each side of the pivotal bar must have lower highs.

### **Category 3 Support and Resistance**

Although each and every trader will use these tools to define and/or enhance his or her own trading style, it is this level that I find to be the most useful when defining specific entry points for most trading charts.

The only difference in the structure of Category 3 support and resistance as opposed to the previously discussed Category 2 formations is the necessity for an additional bar on each side of the pivotal bar to complete the formation.

#### **Support**

The Microsoft chart, Figure 7.6, illustrates the construction of three Category 3 support points. Note that each formation is completed when three bars on each side of the pivotal center bar are printed with higher lows than the center bar.

We will use this chart again when we discuss the specific entries into high-percentage day trades. The chart will give specific indications of a downtrend in place for the remainder of the day after only one hour has elapsed during the marketing day. We will also describe an exhausted correction to the upside between 9:30 and 10:00 A.M. Finally, we will use the support points described by the Category 3 support pattern to give us a specific short entry point at 59.375, which allows us to participate in the down move that follows.

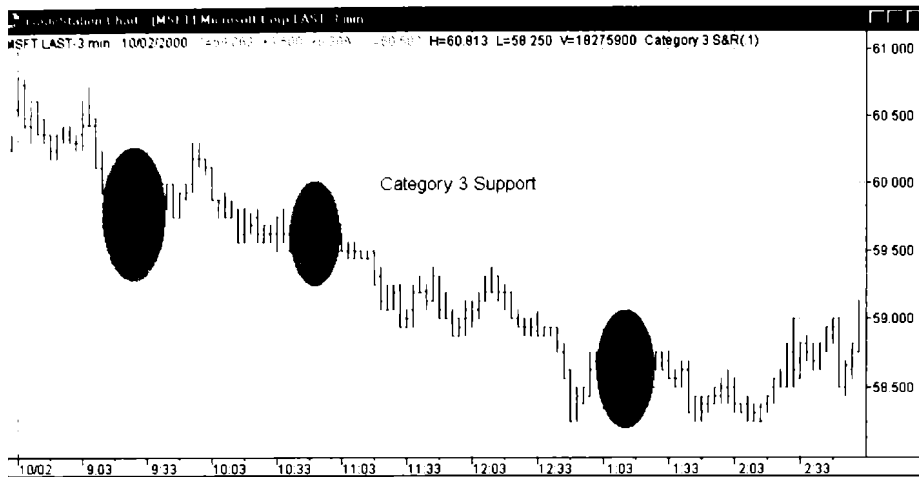
#### **Resistance**

To complete our examination of our six support and resistance formations, let's now consider Category 3 resistance.

Figure 7.7 illustrates five such resistance points on a five-minute chart of Sun Microsystems Inc. (SUNW) stock.

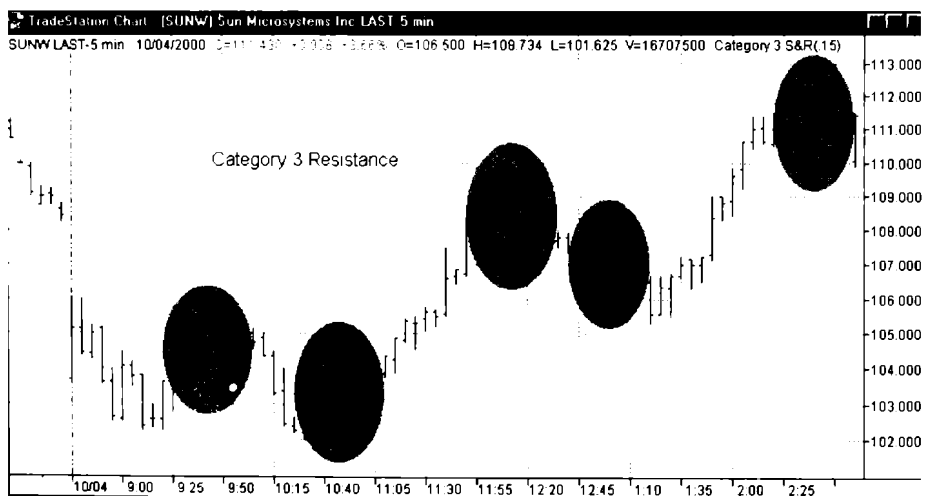
Again specifically take note of the fact that there must be three bars on each side of our pivotal center bar for the Category 3 resistance formation to be complete.

In Chapters 10 and 11 we will discover that it is possible to describe



**Figure 7.6** Category 3 support requires three bars on each side of the low bar with higher lows. This chart will be used later to demonstrate the use of these critical points for both trade entry and protective stop placement.

Chart created with TradeStation® 2000i by Omega Research, Inc.



**Figure 7.7** Category 3 resistance points must have three bars on each side of the high bar with lower highs. Note that the second and fourth formations, while lower than similar formations that precede them, have equal validity for stop placement as the higher points.

Chart created with TradeStation® 2000i by Omega Research, Inc.

accurately an uptrend early in this day and define an exhausted correction within this uptrend. It is then possible to utilize the points defined on the chart to issue specific buy stops first at 104.625 and then at 108.50 for entry into the long side of this market.

## MULTIPLE AND SIMULTANEOUS FORMATIONS

As you gain more familiarity with the formations detailed in this chapter you will soon recognize that the various categories of support and resistance often overlap each other. Obviously, all Category 3 formations also contain Category 1 and Category 2 formations by definition. A Category 3 formation with three qualifying bars on each side of the pivotal bar also easily qualifies for Category 1 and 2 formations, which require fewer similar bars for completion. Other combinations of support and resistance formations are not as obvious. To illustrate these complex formations, we will first reexamine a chart used previously in this chapter to detail the construction of Category 1 support.

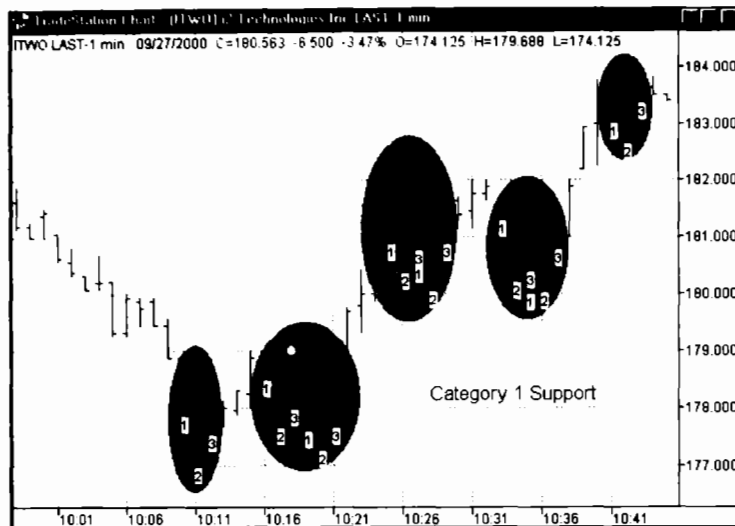
In Figure 7.8, there are several Category 1 support levels shown, two of which overlap to some degree.

The next chart, Figure 7.9, is a duplicate of the previous chart but with all Category 1 formations removed and Category 3 support formations identified by our familiar black dot below the pivot bar of the formation. The bars making up the Category 3 formation are also drawn with a heavier black line.

Figure 7.9 displays a nearly classical distribution of calculated support points as defined by our Category 3 formation. Note that the support point formed at 10:20 A.M. is slightly higher than the previous point plotted nine minutes earlier. This formation clearly illustrates typical support construction as the market trades higher, showing a healthy respect for the heavy buying that appeared a few minutes earlier slightly above the 177 level.

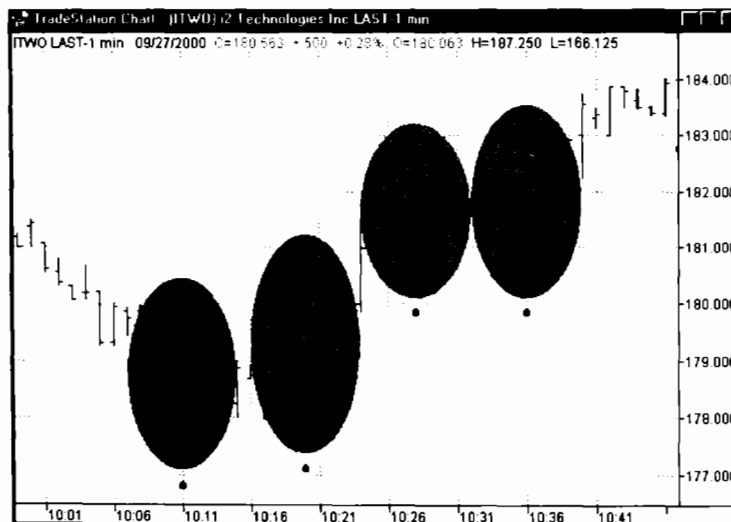
Equally interesting is the situation created by the next two Category 3 support points. Note that the points are plotted at exactly the same price level, forming what is known as a double bottom. In this case, the market tested previously defined support at 180.375, uncovered considerable buying interest at this price, and traded sharply higher as a result.

As mentioned previously in this chapter, we will be using these



**Figure 7.8** Multiple Category 1 formations may be found at significant areas of support or resistance.

Chart created with TradeStation® 2000i by Omega Research, Inc.



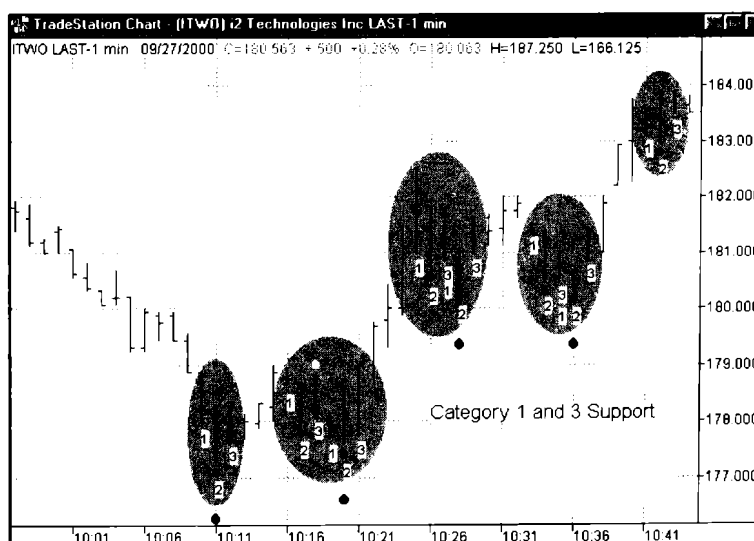
**Figure 7.9** Classic Category 3 support points have significant value in this case when used as the basis for a trailing stop strategy.

Chart created with TradeStation® 2000i by Omega Research, Inc.

calculated support points to place sell stops for entry into a short position should this defined support fail to hold. This chart will be used again later to demonstrate in detail why stops are not placed at the exact calculated support point, but, in this case, slightly below the exact point. Briefly, our sell stops are lowered slightly to prevent being filled on a short entry at a double bottom such as the one illustrated in the chart. Setting the stop a bit lower assures that the market must violate calculated support in order for us to get a fill, not just equal the support level and then trade higher, immediately putting us in a loss position. Much more on this theory of stop placement later in the book.

Now let's again show the same chart with a larger black dot identifying the pivot point of the Category 3 support along with the previously selected Category 1 support points.

Study Figure 7.10 carefully, observing the interactions of our two support patterns as they identify various levels of market support. The points identified by the Category 3 support, as noted in previous comments, are in this instance more effective for market entry than the Category 1 support also shown here. Although the Category 1 patterns



**Figure 7.10** Individual Category 1 support formations are often discovered within the enveloping Category 3 structures. In this case the resulting Category 3 formations have greater significance.

Chart created with TradeStation® 2000i by Omega Research, Inc.

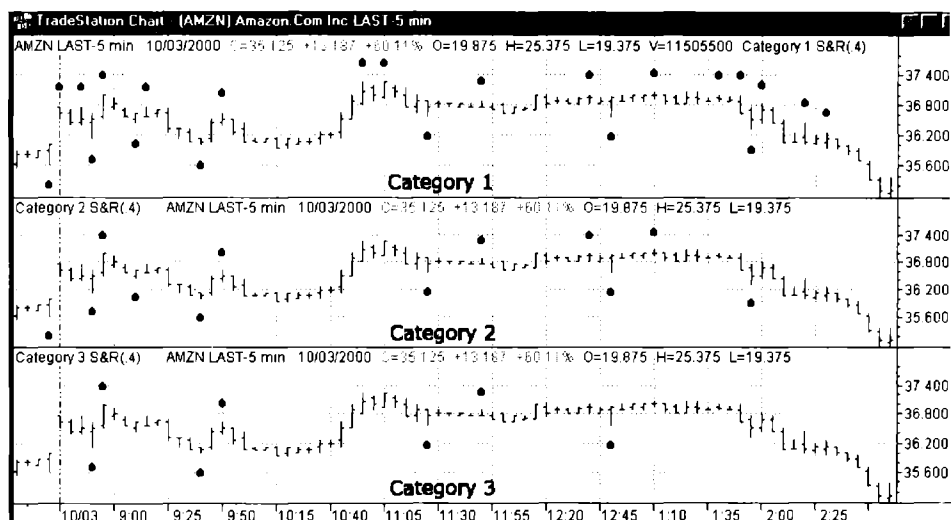
will appear more quickly on the chart due to the limited number of bars required to complete the formation, the Category 3 points, while taking longer to surface, are in this instance definitely worth waiting for.

As you apply these chart patterns in your study of a particular market you will soon notice which patterns and indicators are the most effective in their predictive ability for the issue or contract that is the subject of your interest. Obviously, in this instance, Category 3 support is more effective on a one-minute chart of ITWO than Category 1 support. If you were to examine a series of one-minute charts of this issue, carefully studying the application of these two support patterns, you would soon form an opinion of which pattern appears to be the most effective on this market. If one were to apply these same tools to a five-minute chart of Microsoft, it is probable that a different conclusion would be drawn. It is for this reason that three levels of support and resistance are examined in this chapter. Different categories of this important tool will be useful on different markets and different time frames.

Often, when referring to indicators such as our support and resistance formations described here, we will discuss these tools as having different sensitivities. Sensitivity, in this context, simply refers to the amount of market activity required for the pattern in question to express itself. Formations requiring a relatively minor amount of market activity to complete their structure are deemed to have a higher degree of sensitivity since they can be significantly affected by minor market moves. Therefore, a Category 1 formation is more sensitive than a Category 3 formation since significantly less market activity is required to complete its final structure. Indicators with a higher degree of sensitivity will appear more often on price charts.

For example, as defined graphically in Figure 7.11, Category 1 support and resistance, with a higher sensitivity, will be plotted on a chart more often than Category 3, which carries a lower sensitivity.

Users will usually find, when using shorter time frame charts, that the higher-sensitivity indicators will appear too often to be of significant trading value. These charts can show a tremendous amount of bar-to-bar activity. The lower-sensitivity tools are more reliable in this instance. While trading this time frame can be useful for taking small, consistent profits out of the market, it is often preferable to use a lower-sensitivity indicator on such a chart to give the trader a bit of a broader look at the current trend of the market than is provided by the rapid appearance of successive price bars.



**Figure 7.11** Category 1, 2, and 3 formations identified on identical five-minute charts illustrate the relative plotting frequencies of the various sensitivities of support and resistance.

Chart created with TradeStation® 2000i by Omega Research, Inc.

On the other hand, those using longer time frames such as 15- to 30-minute charts will find that the lower-sensitivity indicators may not appear on their charts at all, and if they do, may be too far behind current market activity to be useful. The higher-sensitivity trading tools, which require fewer bars to complete their signals, are a more practical alternative in this instance.

### Sensitivities for Entry versus Exit

Traders usually find that the same sensitivity that proves useful for the placement of buy and sell stops for entry may not, in the final analysis, prove to be the setting that is most productive when used to first place and then move trailing stops.

It may be the choice of traders to use the lower-sensitivity Category 3 formations to place stops for entry, as the market acceleration that usually accompanies violation of support and resistance is often more pronounced with this chart pattern. However, this same formation, since it takes considerable market activity to complete, may not be as productive when used to place trailing stops. Higher-sensitivity Cate-



gory 2 or even Category 1 support or resistance may be a more useful tool for this purpose, especially when the trade progresses to the point when there are significant profits to protect. As always, the choice of sensitivity settings with respect to support and resistance determination is highly dependent on the trading style of each individual.

For comparison purposes, Figure 7.11 is presented to further illustrate the appearance of our three sensitivities of support and resistance patterns. Each segment of the graph plots an identical five-minute chart of Amazon.com. As labeled on the graphs, Category 1 support and resistance are plotted on the top segment, Category 2 on the center, and Category 3 on the lower portion of the chart.

By now you are probably asking, "With all the choices of indicator sensitivities and charting time frames, which combination am I to use?" The answer lies within the structure of your own preference and trading style. As discussed earlier, highly successful traders develop a trading style which fits their personality, risk tolerance, and trading goals. They develop this style to a high level and implement it precisely. As you experiment with various indicator combinations and time frames you will discover for yourself which combinations will be the most useful considering your own trading personality profile.

## RECOGNIZING THE PATTERN

This chapter thus far has concentrated specifically on the construction and interpretation of the six support and resistance categories we will be using to define entry and exit points for trade placement and exit placement later in this book. Additional considerations are important concerning the accurate recognition of these points on a real-time basis.

First of all, recall that in each case discussed a certain number of bars must appear after the bar that defines the actual point we will use in trading. As a result, these specific points are not available for use until after these trailing bars have been completely formed. It may seem like a simple point during a discussion using historical charts, but it is of vital importance to understand this concept completely before using the technique in real-time trading. On the historical charts used for the explanation of the use of these points it looks as though the areas in which we have an interest clearly appear well before the time when they must be used to place buy and sell stops.

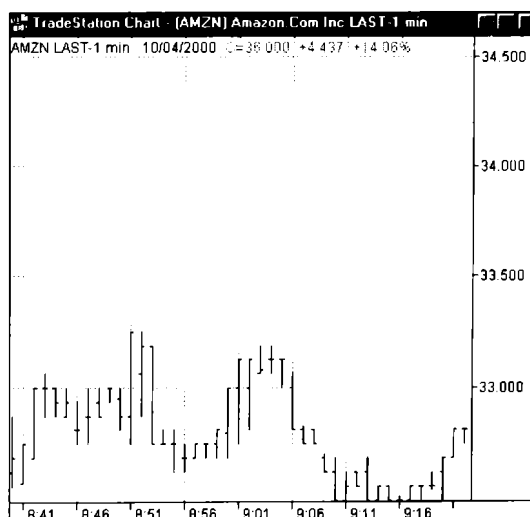
However, in real-time trading this is not the case. In fact, one may have a very short time in which to discover the important price level and place the appropriate order. Several following charts illustrate this point.

For our real-time example we will use a one-minute chart of Amazon.com, Figure 7.12, from the early-morning trade on October 4, 2000. The only notable feature on this chart so far is apparently aimless, sideways activity in the \$33 area. We will advance this chart a few bars at a time to demonstrate the activity of our resistance indicator.

Adding three more bars to our chart, we now see a pattern developing in Figure 7.13 that at first glance appears to be a continuation of the same trendless activity we have observed so far in the day's session. Note that, to the casual observer, the market seems to be forming a triple top in the \$33.00 to \$33.25 area on the chart.

Allowing three additional bars to appear on our chart in Figure 7.14, our earlier suspicion of a triple top appears on the verge of coming to reality.

Closely observe what happens with the print of a single additional bar on our Amazon.com chart in Figure 7.15. The latest bar to appear on our chart is the third bar in the sequence that has a high that is



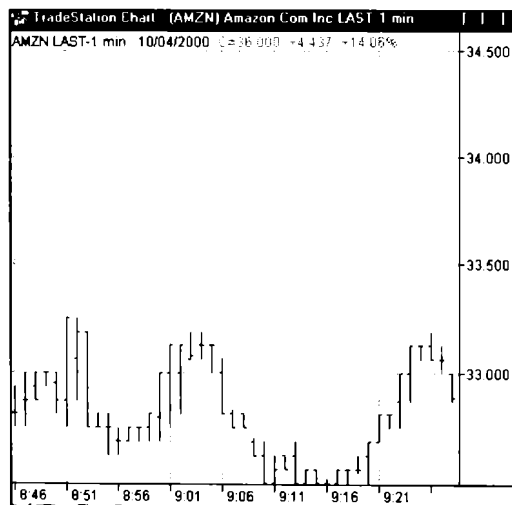
**Figure 7.12** Initially this chart appears to be one of a sideways, trendless market.

Chart created with TradeStation® 2000i by Omega Research, Inc.



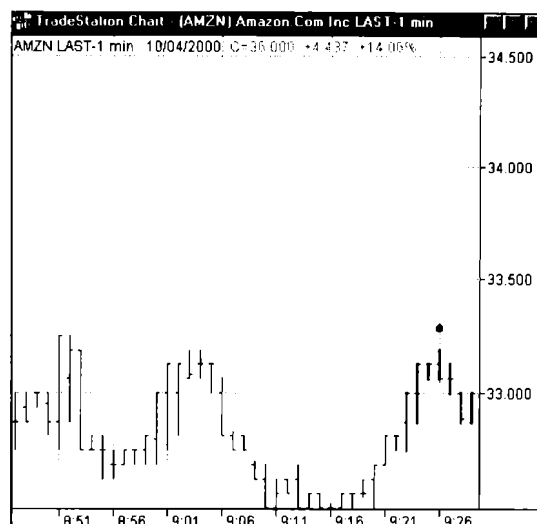
**Figure 7.13** Adding three bars to Figure 7.12 gives the initial appearance of a developing triple top.

Chart created with TradeStation® 2000i by Omega Research, Inc.



**Figure 7.14** Adding three more bars appears to confirm the topping formation.

Chart created with TradeStation® 2000i by Omega Research, Inc.



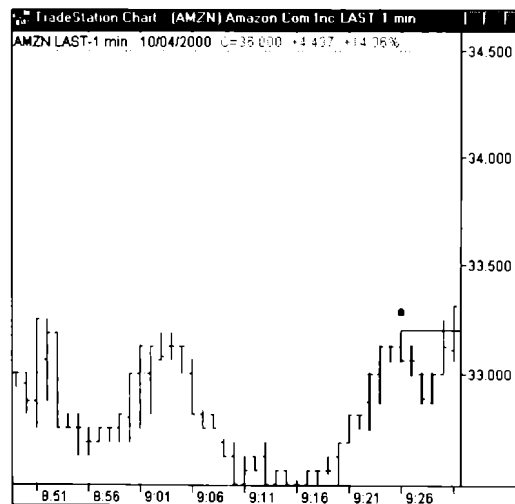
**Figure 7.15** Addition of only a single bar completes the pattern required to plot Category 3 resistance. Note that there are three bars following the high bar that have lower highs than the resistance bar.

Chart created with TradeStation® 2000i by Omega Research, Inc.

lower than the high of the highest bar in our seven-bar sequence, thereby completing all requirements for a Category 3 resistance formation. In this case, automated software has pinpointed the completion of our formation. The resistance point of critical importance at this point is now defined at \$33.313, the high of the center bar of our seven-bar formation. Our trading strategy will place a buy stop slightly above this level to enter us into the trade automatically should our resistance point be violated by market activity. It is important at this juncture to emphasize that the resistance point of interest on this formation is the high of the center bar of our formation. The black dot directly above our pivot bar is significant only in that it specifically identifies the high bar of interest. The price level at which the dot appears has no significance regarding the placement of trading stops. The critical level, when using our six categories of support and resistance, is always the high or low of the bar in question. Although we will not always use these exact values as our specific entry points, for reasons that will be explained later, the calculation of the point we will eventually use for actual trading begins with the high or low of the center bar in the formation.

The important issue here is that the significant price level from this formation was not identified until three bars were plotted following the high bar. Often, when one is examining historical charts, the mistaken impression is that these support and resistance points become obvious as soon as the bar associated with the identifying black dot has completed its formation during actual real-time trading. The lesson to be learned here is that, although the specific points may appear to have a significant time separation from the current market price, in actuality one has much less time to use these points in actual trading than seems to be the case from the observation of historical price charts. This situation is further illustrated in Figure 7.16.

In this chart, two more bars have been printed. A horizontal line has been manually added to the chart to mark the resistance point at \$33.313, identified by our Category 3 resistance formation. Note that the very next bar printed following the completion of our resistance formation traded up through our identified resistance point, filling

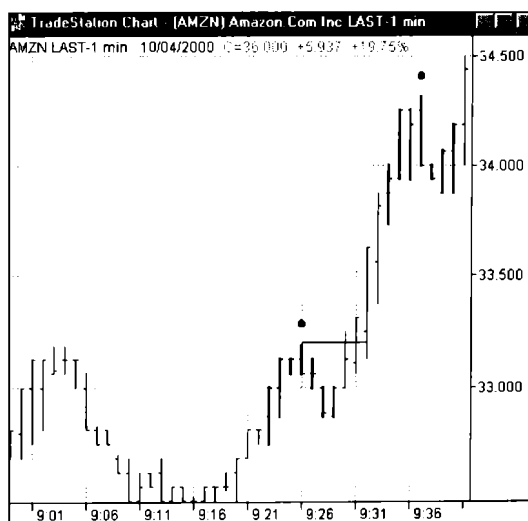


**Figure 7.16** The bar printed immediately after the confirmation of Category 3 resistance has broken through the resistance point established by previous market action. Although it appears on a historical chart that the trader would have had several minutes to act upon this resistance point, in actuality the trader would have had less than one minute to utilize this important price point for actual trading.

Chart created with TradeStation® 2000i by Omega Research, Inc.

our stop order and creating a long position in the market. Therefore, a trader wishing to utilize this resistance point for the placement of a buy stop would have had less than one minute to place the appropriate order after the resistance point in question had been identified. Granted, had the order not reached the execution arena by the time the first bar after the completion of the formation had been formed, there would have been time for the order to have been filled since the next bar in the sequence also traded through the placed stop price. Figure 7.17 further illustrates the necessity for timely action when these important points are identified.

Figure 7.17 covers the activity of Amazon.com for the next 10 minutes of the trading day. Note that our position has produced an open profit at this point of over \$1 per share. Again, the emphasis here is that, even though the significant resistance point on the chart appears to have been placed at 9:26 A.M., it was actually not present, on a real-time basis, until three minutes later. If one had not acted in a prudent manner in this instance, one would have soon lost the opportunity for a profitable trade. The danger of missing the trade is even more evident on this chart when one considers the trading environ-



**Figure 7.17** Adding 10 more bars illustrates the necessity of close observation when using resistance points for stop placement.

Chart created with TradeStation® 2000i by Omega Research, Inc.

ment present on the chart for the several minutes prior to the formation of our resistance point and the eventual breakout of the market to the upside. Recall the wandering, sideways mood of the market noted prior to the development of our pivotal resistance point. The tendency is always present to be complacent when this boring, sideways action presents itself. Had one not been observing the market closely, which could certainly have been the case here, a good trading opportunity could have been lost.

Incidentally, note, at the termination of the chart, the formation of a second Category 3 resistance formation. As was the case with our first such pattern, the bar immediately following the completion of the chart formation traded through the resistance point, again affording the trader precious little time to act upon this new information.

### **VISUAL VERSUS AUTOMATED RECOGNITION**

It is certainly possible to rely on your own observation of price charts for the recognition of support and resistance points. Visual chart monitoring is especially effective for the trader using longer-term time frames such as 30-minute, 60-minute, or daily bars for trading, since there is ample time between the formation of successive bars for interpretation.

However, those using the more rapid-paced one- or five-minute charts, for example, may find that there is not sufficient time in which to first recognize the appropriate formation and then formulate an accurate trading strategy utilizing this information. In this case there is a decided advantage in the use of a computerized charting package that allows the user to create and apply various custom trading strategies and indicators.

### **CHAPTER REVIEW**

1. The understanding of short-term support and resistance is vital to effective trading.
2. Calculated support and resistance levels are used for both trade entry and exit.

3. Three categories of support and three categories of resistance can be applied to charts of varying time frames to accommodate both short-term and long-term trading strategies.
4. Multiple support and resistance formations may exist simultaneously at certain chart points.
5. Support and resistance formations may be recognized and interpreted either visually or with the use of computerized charting software.



# 8

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## SUPPORT AND RESISTANCE IN ACTUAL TRADING

In the previous chapter a significant amount of space was devoted to the detailed explanation of the construction of several chart formations resulting in the definition of various support and resistance points. In this chapter you will discover why this issue is being emphasized so heavily.

I am firmly convinced that the concept of support and resistance as it is used to set entry and exit levels for actual trading is the most important single concept that an individual must master if he or she is to be a successful trader. *Period.*

I am also as firmly convinced after teaching this concept in almost every conceivable manner and situation that it is without a doubt the most difficult strategy for most traders to both understand and properly implement.

The identification of these points on a chart can be vital to the success of a trader, hence the heavy emphasis on the construction and recognition of these chart formations in the previous chapter.

Using support and resistance to determine the exact entry and exit points for each trade could easily be the most powerful tool that you have at your disposal to increase the accuracy of your trading

dramatically. Combining this process with the Directional Day Filter will further increase trading accuracy.

This being said, let's preface our remarks concerning this point with a general discussion of the dynamics of this pivotal concept.

Visualize for a moment that market prices and charting are nothing more than the graphic representation of human activity in the marketplace. Markets move higher when there are more buyers than sellers. Markets move lower when there are more sellers than buyers.

Let's assume for the purposes of illustration that there is one large trader or a group of traders who for whatever reason wish to purchase as many shares of their favorite stock as possible at a given price. They patiently bide their time until the market drops to their desired level and begin their buying activity. This buying activity drives the market a bit higher for a while, moving the price to a higher level than our traders are willing to pay. A bit of selling surfaces as our guys lie low for a while and the market drifts lower, back into our group's buying zone. They once again buy the stock until it rises out of their range. This can happen multiple times. Eventually, the market realizes there is significant buying activity in the market at a certain level. Other players come aboard, fueling the rally.

The level at which all the buying in this example occurred is referred to as support. This is a price at which our group of traders decided to buy, or support the market.

The exact opposite can occur when our group of hypothetical traders decides to sell at a certain level, selling in volume each time the market rises to a given point. In this case we refer to this point as resistance, a point at which the forces of the market, in this case our group of traders, cause the market to move lower.

The market is quick to identify these points as the activity around these levels can be very useful in predicting near term-market movement.

When the market breaks through one of our defined support or resistance points, price movement can be significantly accelerated in the direction of the breakout. Think about this phenomenon again as a function of human behavior.

Back to our little group of traders. They are buying at a given level, and the price continues to return back down to their level. Everything has a limit, including these guys' trading accounts, so they must discontinue purchasing and wait for the expected rise in

price. However, a larger group of traders has noticed a substantial accumulation of shares at a given price; they know there will be substantial selling if they can force the market down through this price level and spook our first bunch into throwing in the towel. Due to their market observation experience, they are aware that most long positions will have stop loss protection in place in the form of sell stops. These are resting orders that become market orders when the price of the stock issue trades at the stop price. Experience also tells others in the market where these stop levels are likely to be resting in reference to the buying level that has created the market support now evident. Usually, these stop levels are only slightly below market support. The second group knows there is a prize to be won if only they can be successful in driving the price of the stock down through the resting sell stops just below market support. This type of activity is known as “running the stops” and is a frequently observed phenomenon as astute market players go on fishing expeditions in search of areas of stop accumulation.

Sure enough, the selling pressure from the second group, along with the market in general, forces the market through the previous support level, triggering selling pressure as the stop orders are filled at any price. As the market continues to drift lower, traders who have not protected their positions with stop loss orders are nervously watching their equity slip away. Soon they are forced, either by fear or by margin concerns, to liquidate their substantial holdings to stem further losses. This rapid liquidation of a large number of contracts, which were accumulated over a much longer time frame, results in panic selling by others holding long positions and new sellers getting on board the new downtrend, and the market continues to work lower.

This make-believe scenario demonstrates the importance of support and resistance in the real-world markets. These points can be used as either specific buying or selling points. Traders can enter the market on the long side in the area of perceived support, assuming that the market will turn higher at that point, placing them in a profitable position. Others will take short positions in areas of market resistance, betting on a price decline from these spots to add to their trading accounts. Traded properly, these strategies can be useful. In most instances, a rather small risk can be locked in with a protective stop loss order. The area for stops to build up on the other side of support or resistance is usually close enough to create only a small loss should they be triggered.

This use of support and resistance depends on the market turning at a particular point to be effective. The trader must execute a long (or short) trade at a point and then wait for the market to respect his or her defined support (or resistance) point for the anticipated profit to develop. In other words, the position is taken in anticipation of the market respecting an important point in a specific fashion. In many respects this strategy is still dependent on a market's not yet realized reaction to a specific chart point.

The approach we will be taking with respect to the placement of entry locations around support and resistance points is a bit different.

As stated previously and demonstrated in our make-believe trading scenario, the reaction of a market when it breaks through significant support or resistance can be sudden, violent, and decisive. It is this type of activity we want to put in our trading account.

The strategy here is to place your buy orders at or slightly above market-defined resistance and place sell orders at or slightly below market support. All orders placed in this fashion are stop orders, or those that are automatically filled when the market price reaches their level. The objective is to enter the market on the front end of what could be a rather quickly developing market trend.

By placing our orders as described in the previous paragraph we are taking advantage of the same market scenario that was responsible for our first group of traders either being stopped out of their position or being forced to throw in the towel to prevent even further losses. The same market forces upon which our second group of traders is depending for their success will be a major factor in creating a profit for our position. As the market breaks through the support created by the buying activity of our first group of traders, our short position is automatically filled, enabling us to profit from the market decline propelled by more stop loss selling. Additionally, the establishment of new short positions by those who are only now realizing that there has indeed been a change in market trend will add further impetus to the decline in price.

Obviously, this scenario on the short side of the market will be easier to execute in the futures arena than in the markets that deal with individual stocks due to the uptick rule, which allows a stock to be shorted only on a price greater than the previous price. However, prices in any market rarely move in a straight line in any direction. The frequent pullbacks in price due to normal market activity pro-

vide opportunities to enter short positions in accordance with exchange rules.

Often, when examining a successful trade generated by this use of support and resistance points, a question arises: Why wait so long to enter the trade since we could have sold it much higher, since we knew the support was going to break anyway?

The short answer is rather simple. Although it's obvious from a historical charting perspective that our trade was profitable and would have been even more so had we entered prior to the break of market support, in real time we don't have that luxury. The likelihood obviously exists that the market will indeed respect its previously established support and rocket higher from this level, creating a sudden losing position from the sale that occurred above the support point. In many respects selling at a level somewhat above support carries with it much of the same risks that are present when a long position is taken at the support level. In the case of the long position the trader is anticipating the market to respect support and turn higher. A trader establishing a short position above support does so in expectation of defined support breaking down. In both instances the trader is taking a position and then hoping that the expected market reaction will then occur.

Instead of taking a position and then hoping the market will react at the support or resistance point, isn't it a more reasonable approach to act after the market has reacted to a given situation and is therefore somewhat more predictable? In essence that is what you are accomplishing by allowing the break of a support area to trigger your trade. If the market does break support and enters you into your position, probability dictates that you have a greater than average chance to make a profit in the trade. In placing the sell order below support you are making a bet that the market will break support and then head further south. If you are wrong and the defined support in fact does support the market, spurring a rally, you're only wrong. Not less wealthy. Since the market, due to its new respect for old support, was not able to reach your preplaced stop order, you do not have a short, unprofitable position in a rising market. You simply remain on the sidelines, keeping your powder dry and your trading account intact, waiting for the next high-probability trade to surface on your chart.

Does the market always go through defined support and resistance to a degree great enough to assure us of a profit on each trade? Of course not. Many times the market will test support or resistance,

break it briefly, find no sell stops lurking in the shadows of support and then trade steadily against the new position established by the just-activated stop order. Stop losses are always necessary to guard your account against this possible outcome of the trade.

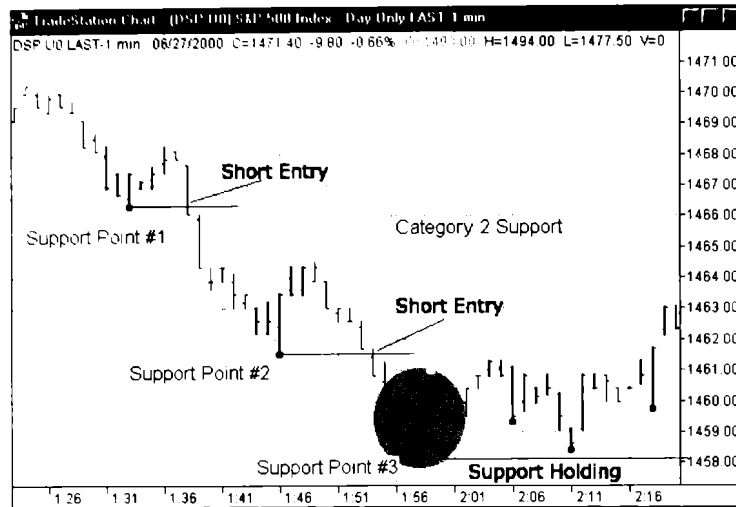
It therefore becomes of prime importance to the technical trader to do everything possible to tilt the table in his or her direction. Obviously, the decision of around which support point to set a trap is critical to high-percentage trading. It is accordingly as important to know on which side of the fence to plant the trap. For this purpose in our developing strategy we will incorporate two basic tools to give us that edge necessary to maintain a profitable strategy. We will use the Directional Day Filter to define the major trend of the day and a unique application of oscillator indicators to open the appropriate buy or sell windows.

Again, for emphasis, when the market breaks through one of our defined support or resistance points, price movement can be significantly accelerated in the direction of the breakout. It is for this reason we use support and resistance points for the placement of buy and sell stops. We will use some of the same charts used in the previous chapter to illustrate the effective placement of these entry stops.

This chart shown in Figure 8.1 was used earlier in the previous chapter to define Category 2 support. I have added three horizontal lines projecting to the right of each defined support point to demonstrate the use of these points. Assuming that we have a valid sell window open from either one of our oscillator strategies and/or the Directional Day Filter, we are then in a mode of looking for a precise entry point for our short trade. As soon as the first support point labeled on the chart is available, after the formation of the last darkened bar, we will place a sell stop at or slightly below the defined point. The short position is entered as the market trades through our price, as it becomes a market order at this point.

An almost identical scenario develops shortly thereafter as a second short entry becomes possible. The next support level is broken, filling our short position order as this market continues to erode. Finally, support holds near the end of the day.

An important point arises here with respect to the third and final Category 2 support point. Although our strategy was successful in getting us into two profitable short positions, it was equally successful in keeping us from entering a third short position that would not have added to the bottom line. It would have been tempting to the undisci-

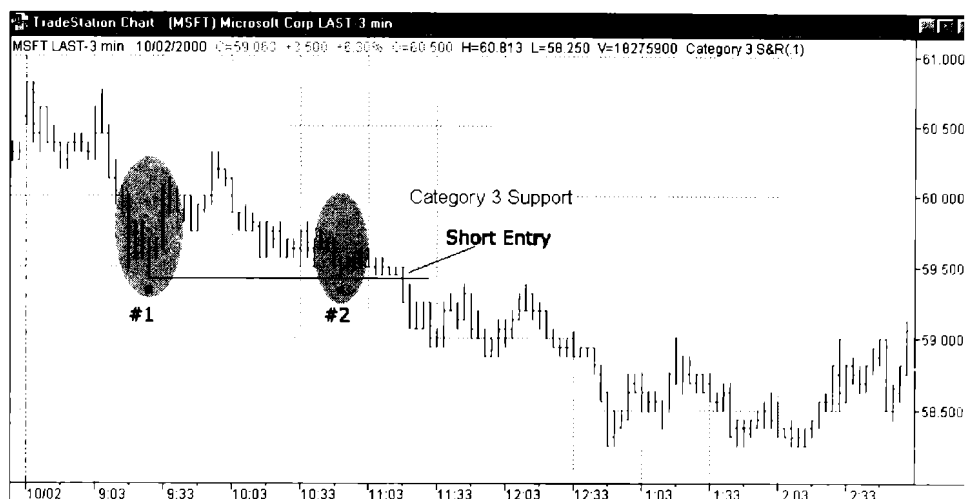


**Figure 8.1** Category 2 support is utilized to enter two successful short positions. The identical strategy prevented taking a third short position near the low of the illustrated move.

Chart created with TradeStation® 2000i by Omega Research, Inc.

plined trader simply to enter into a third short position since the market had been in a down mood all day and previous entries had been successful. This rush to add another short trade would not have been a profitable decision since the market now respects support and halts its decline for the day. Had we attempted to enter a third position in the same manner that had proven acceptable in the first two trades on this chart, no position would have resulted since the price did not violate our support area and activate our preplaced sell stop.

Another situation is shown in Figure 8.2. Following the establishment of a lower-trending day by the Directional Day Filter, the market forms an initial support point as marked by #1 on this Microsoft Corp. (MSFT) chart. Instead of breaking through when first approaching our support area, the market respects the support at first, in effect strengthening the existing support level by placing a second support point at a price level only slightly higher. In the process, a second Category 3 pattern appears that places additional support at this area. When the market finally does violate this support, the market continues its move lower.



**Figure 8.2** A double bottom formation identified by two successive Category 3 support points is used for the placement of a sell stop for entry into a short position in Microsoft.

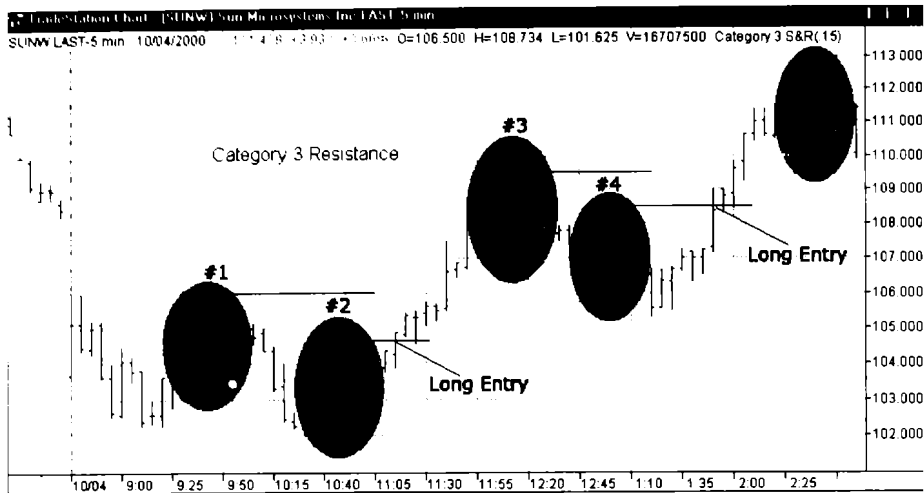
Chart created with TradeStation® 2000i by Omega Research, Inc.

Figure 8.3 demonstrates another useful technique for the use of resistance, in this instance during an uptrending day. Assume that one and a half hours into the trading session we have determined, with the help of the Directional Day Filter, that the major trend of the day is higher. Also, there has been a buy window opened up using several of the oscillator-type indicators. With these facts in place we are now actively searching for a high-accuracy entry into the uptrend.

Shortly after 10:00 A.M. the resistance point labeled #1 becomes our prime focus for the placement of our buy stop. According to system rules we will place a buy stop at this level. Recall that this point is not available until the 10:00 A.M. bar is completed.

A little over an hour later point #2 comes into play. We now have a resistance point that will allow us to enter at a lower level with the same probability of success as was present with the entry at #1. At this time we will cancel the buy stop placed at point #1 and replace it with the lower buy stop at #2. Our first long position of the day is established as the market trades through our buy stop two bars after the stop was moved to the lower level. Again recall that this stop cannot be placed until the third darkened bar is complete. Although our original buy stop would have certainly been filled by subsequent mar-





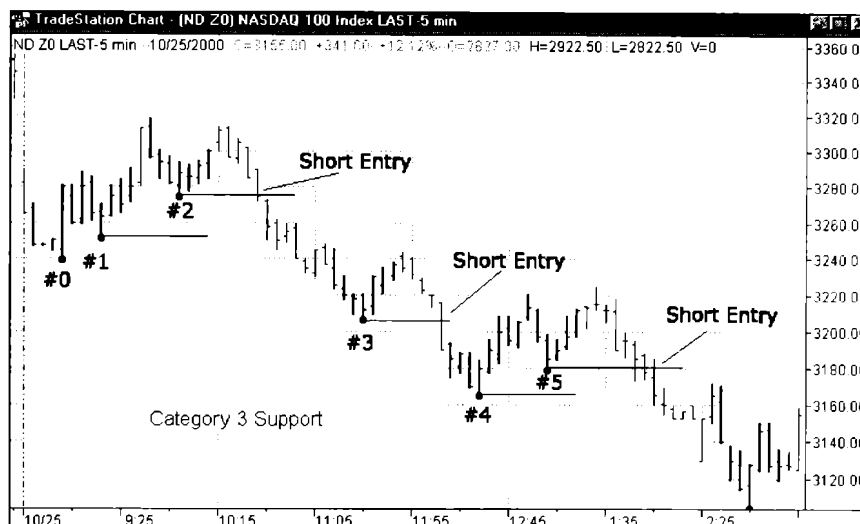
**Figure 8.3** Category 3 resistance is used to place stops for two long entries. Chart created with TradeStation® 2000i by Omega Research, Inc.

ket activity, the appearance of a lower resistance point gave us the opportunity to enter the market at a lower level, thereby increasing the amount of profit possible for this trade.

Later on in the day a quite similar situation presents itself. The resistance level defined at point #3 becomes the location for our initial buy stop for entry again on the long side. A bit later, before our second buy of the day is accomplished, we are presented with an equally valid buy point, which is again slightly lower than the original entry point. Moving our buy stop to this new, lower level allows us once again to add roughly \$1 per share to the profit potential of the trade.

Any Category 3 resistance that appears on the chart is just as likely to produce a profit as any other similar pattern. The trader therefore should not be hesitant in moving the stop to a level that will be more profitable should the trade move in a favorable direction after entry. The natural tendency is to doubt the validity of a long entry since the market has just defined a lower resistance level in what, by all available information, is supposed to be a rising market. However, if the trend indications from other trading signals remain in a long position one should not hesitate to move the entry order to a lower level.

Figure 8.4 details the development of a similar entry pattern on



**Figure 8.4** Sell stops placed at Category 3 support points result in three successful short trades.

Chart created with TradeStation® 2000i by Omega Research, Inc.

the short side of the market, this time using the volatile Nasdaq 100 index futures as our market example.

Sell windows have opened up rather early on this day from our oscillator indicators, which are not displayed on this chart, leading the trader to first of all begin searching for exact entry points that will provide highly accurate short positions. The first support, identified at 8:55 A.M. at 3,240, comes too early in the day to be useful for the purpose at hand, as it falls within the first hour of the trading session when our indicator routines are still determining the trend for the rest of the day and looking for eventual buy and sell windows. This point is labeled #0 on the chart.

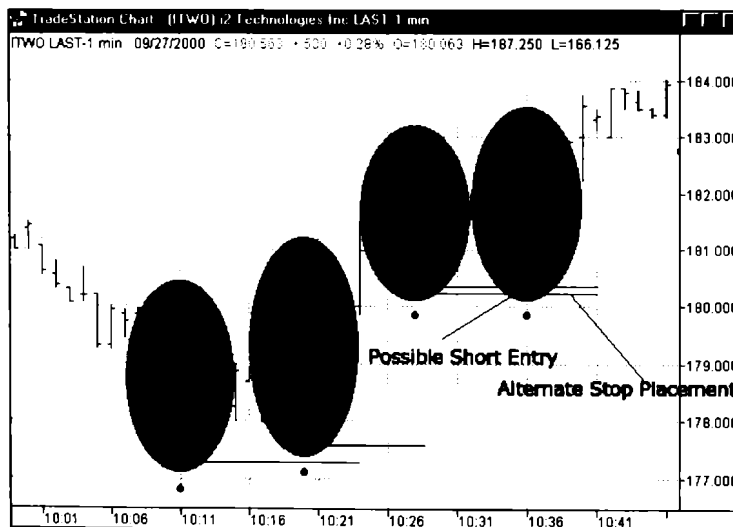
Point #1 appears on the chart on the 9:15 A.M. bar, but the pattern is finished after the 9:30 A.M. bar has been completed, barely placing it within a useful time frame early in the morning. I have marked it on this chart for illustrative purposes.

At 10:10 A.M. our next support point, at 3,275, becomes evident, as the requisite three bars following the pivot bar have been completed, finishing the Category 3 support pattern. At this time our sell stop is moved from 3,252, the point identified at #1, to our new support level at 3,275. Our new short position is established on the 10:35 A.M. bar when the market trades through our newly placed sell stop.

Later on in the day point #3 appears, again allowing us to place a sell stop at yet another high-probability entry point at 3,207. This position is filled as the market makes another new low on the 12:10 P.M. bar. This downward thrust places a new low on the chart at point #4, which later develops into another Category 3 support point. A few bars later, yet another such pattern develops, giving us a higher value to use for our next short entry point at 3,180, which is marked #5 on the chart. This order is filled at 2:00 P.M. as the market puts in its final leg down for the day.

## FINE-TUNING STOP PLACEMENT

Quite frequently you will observe what is known as a double bottom or double top on a price chart. These are areas where support or resistance has been uncovered at the exact same price levels only a few bars apart. These situations present a very real danger to our method of entering the market. Figure 8.5 identifies a support point slightly above \$180 at about 10:30 A.M. This same level is identified a second



**Figure 8.5** When placing buy or sell stops, “fading” defined support and resistance levels will avoid orders being filled without support or resistance actually being violated.

Chart created with TradeStation® 2000i by Omega Research, Inc.

time as a support level again a few minutes later. Had a trader placed a sell stop at the exact price level of the first identified support point, the chances are indeed very high that he or she would have soon received a fill on that stop order as the market did indeed trade at the specified price, if only for a very short time. In this instance this fill would have resulted in an immediate losing position.

Also marked on this chart is an alternate stop placement line resting only slightly beneath the original support point identified at about 10:30 A.M. In this instance, “fading” the support level by only a slight amount avoided being filled on a double bottom formation. Had the market continued through the lower stop level and in fact created a short position that turned out to be profitable, the amount of profit given up by using a lower stop for entry is a small price to pay for avoiding an entry into a losing position. This is certainly a point well worth consideration when the trader is formulating his or her trading strategy with respect to fine-tuning the placement of entry stops.

## CHAPTER REVIEW

1. The use of support and resistance points for actual trade entry is the single most important concept for a trader to master.
2. By using support and resistance the trader is able to enter after the market has confirmed its next move.
3. Support and resistance points developed by identical chart patterns have equal probabilities of success when used as entry points.
4. Fine-tuning stop placement to avoid double tops and bottoms can have a significant effect on overall trading accuracy.

# 9

## **COMBINING DUAL SIGNALS, SUPPORT, AND RESISTANCE**

### **“BUY WINDOWS” AND “SELL WINDOWS”**

In this and following chapters I will be illustrating buy and sell positions from various indicator combinations. For this reason I will reserve the use of the up and down arrows for actual positions that would be taken under a given scenario.

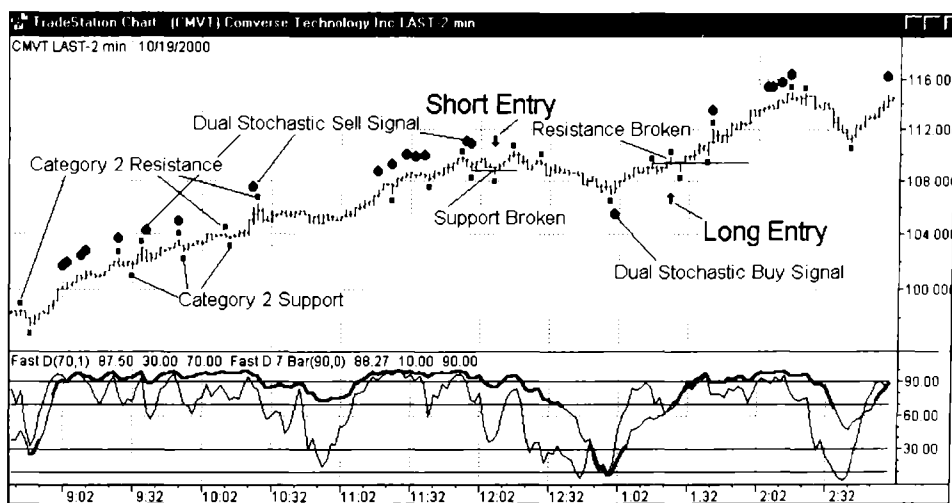
For purposes of understanding the indicator combinations we will be using, it is helpful to regard signals as given by various scenarios as the opening of buying or selling “windows” during a given time frame. When we speak of a sell window opening we are referring to an instance where an indicator or combination of indicators has identified an area where a sell signal may be taken. Once the sell window has been opened, all that is then necessary for the entry to be completed will be the violation of an associated support point. If a buy window is opened, we will look for the market to penetrate an overhead resistance area to complete the trade entry.

## USE OF SUPPORT AND RESISTANCE TO DEFINE ENTRY POINTS

Figure 9.1 is the familiar chart that was used frequently to demonstrate various indicator combinations and settings in an uptrending market. In Chapter 5, "Conventional Use of Online Indicators," it was pointed out that even though the dual settings used with the stochastic indicator were effective in reducing the number of trading signals, the signaling of many trades taken against the major trend remained an annoying problem. In this example we illustrate the use of Category 2 support and resistance as an entry definition tool, eliminating nearly all the unprofitable trades against the trend of the day. This same tool also defined the most profitable trade of the day, entered on the long side shortly after the noon-hour correction.

For purposes of clarity, I have replaced the position arrows used previously to designate stochastic buy and sell points with the larger black dots labeled "Dual Stochastic Buy Signal" and "Dual Stochastic Sell Signal" on the chart. The arrows are used on this chart at the point where both long and short trades are actually entered using this trading formula.

Note that on this uptrending chart there is a sell window opened



**Figure 9.1** Dual stochastic has opened first a buy window and then a sell window, after which positions are taken as support or resistance is broken. Chart created with TradeStation® 2000i by Omega Research, Inc.

by the dual stochastic indicator combination for most of the first half of the trading session. This window stays open for the entire period since the rally is of sufficient magnitude that there are no intervening buy signals issued for the duration of the price move. You will also notice that there is a steady string of Category 2 support points identified along the way. Had the market moved down through any of these support areas we would have had a valid short entry.

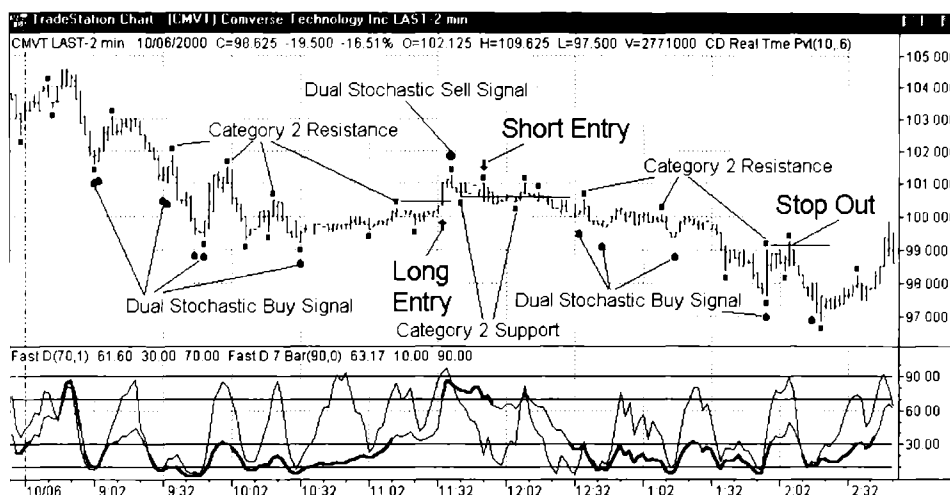
In fact, that is what happens when the market enters what turns out to be a correction in an overall uptrend during the noon hour. Underlying support is broken as identified by the short entry designation appearing shortly after 12:00 noon.

Just before 1:00 P.M. a new buy window opens up, the first such indication on this uptrending day. A Category 2 resistance point is placed 24 minutes later as the market puts in a minor correction from the persistent uptrend. As you can see, when the market breaks the buy stop placed slightly above our new resistance area, we are entered into a long position as our buy stop is activated.

Although we have taken a small trading loss as we are reversed from our first short position to the subsequent long entry at a slightly higher price, the gain from the long position taken late in the day and held into the close more than offsets this minor setback for our trading account. For purposes of comparison, think what the net result would have been had all the sell signals being issued as the market rallied all morning been taken. Chances are that most traders would have been discouraged by the series of losses generated by these trades and would no longer be trading when the best signal of the day surfaced after the minor downside correction. These short trades are never entered as support is not broken. In this manner we are able to take significant advantage of using our dual stochastic indicator as the primary trade entry indicator while also employing our knowledge of support and resistance as a filtering tool to generate our actual entry points for trade entry.

In Figure 9.2 we are using our familiar CMVT chart from October 6, 2000, to demonstrate the use of the dual stochastic entry method combined with the use of Category 2 support and resistance to define an exact entry point.

Early on the chart note the steady decline of the successive locations that mark our Category 2 resistance points. The highs of these pivotal bars that make up the resistance formation are used for



**Figure 9.2** Dual stochastic combines with Category 2 support and resistance to dictate entry and exit points for two trades.

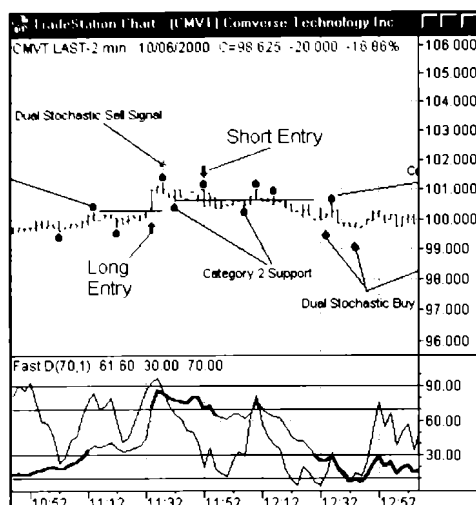
Chart created with TradeStation® 2000i by Omega Research, Inc.

placement of our buy stops for actual trade entry. Note that, as a result of these points being defined at a lower and lower level, we are not able to enter the long side of a declining market, even though we are getting repeated buy signals from the dual stochastic indicator. Since the price does not trade up through our buy stops, slightly above resistance, we are not able to enter the market. We enter on the long side only when the market finally violates our buy stop at 11:34 A.M. at the 100.25 price level. The short horizontal line on the chart identifies the placement of the buy stop.

A considerable amount of the discussion of this scenario involves a small section of the chart. Figure 9.3 is simply a blowup of the prime area of interest on Figure 9.2, included to illustrate more clearly the points of interest.

Only two bars after our long entry we are presented with a dual stochastic sell signal. At this time note that the Category 2 support points plotted beneath the price bars are creeping steadily higher in tandem with the modest uptrend that is slowly trying to establish itself. As soon as the dual stochastic sell signal appears we look to the most recently plotted Category 2 support level to establish an entry point for a reversal to a new short position, or, more conservatively, establish a stop loss position for our long trade. Whether this point is





**Figure 9.3** A long position is reversed to short by the activity of dual stochastic and Category 2 support and resistance.

Chart created with TradeStation® 2000i by Omega Research, Inc.

used as a point to reverse the trade or as a point simply to exit the long trade to wait for another opportunity is up to the discretion and individual trading style of the trader. For the purposes of the explanation of the sequence at hand we will assume that we are reversing the current position to a new short position in this market.

As you can see, the new short position is taken almost immediately as the market violates our buy stop placed at 100.625. Recall that our Category 2 support and resistance points are not available for use until two bars have formed after the pivotal bar in the formation. In this case the support point was available for use at 11:48 A.M., just four minutes before the market passed through this level, reversing our position to short.

Following our short entry the market cooperates nicely by entering a steady decline. Note on Figure 9.2 that our Category 2 support points follow along as each ensuing upward correction is met with renewed selling pressure. Also notice that the market action is now generating buying signals from our dual stochastic routine. Each time these buy signals appear, we are obliged by our system rules to place a reversal buy stop at the most recent Category 2 resistance point. Obviously, none of these stop prices are violated by the downtrending

market; thus we are able to maintain our profitable short position for a considerable portion of the remainder of the day.

Looking at these successively lower resistance points from the perspective of the placement of a protective trailing stop, one can readily appreciate the manner in which this use of market-generated resistance points can be an effective technique for the protection of more and more profit as the trend progresses. If this scenario for profit protection and eventual exit is the one being used, the trader simply places his or her stop at the most recent resistance point plotted on the chart. As a lower resistance level is uncovered by the appropriate chart formation, the protective stop is canceled and replaced at a lower level. This process obviously comes to an end when the market goes through the stop or the trade is exited at the end of the day. This regular cancel and replace routine works very well with the advent of electronic order entry, as orders can quickly be changed without placing undue burdens on trading desks and floor personnel.

Later in the day the probability of entering a new day trading position and exiting with a significant profit becomes less and less likely. This is simply due to the fact that there is less and less time available for our expected scenario to play itself out during the time remaining in the trading session. One can certainly use the rules established here to enter into positions that may be held over into subsequent trading sessions, but since our emphasis here is on day trading we will assume that there will be few, if any, positions established in the last hour of trading. Halting the entry of any new day trades during the last hour of the session is certainly not a hard-and-fast rule, but the 60-minute time frame will serve as a good rule of thumb. Again, this concept is better served as a function of the user's individual trading style. Each individual will soon determine the proper time to cease placing new market entries concurrent with the method of trading being used and the market under consideration.

Assuming no new positions will be entered in the last hour, we then look to our Category 2 resistance points for locations at which to place our stops in an effort, in this case, to protect a significantly profitable position in CMVT. It is particularly important to use these types of stops at the end of the day, especially if the day has experienced a major trend, either up or down. On days such as these it is highly likely that there have been many new positions opened throughout the course of the session that are now profitable to one degree or another.

Many traders finding themselves in this position will elect simply to claim their profits for the day before the market closes. These exiting trades can put a noticeable pressure on the market in the direction opposite the trend that has been established for the day. Also, and possibly more significantly, those individuals who are caught on the wrong side of a trending market are becoming increasingly uncomfortable with their losing positions. Faced with the possibility of further losses should the market continue its trend during subsequent sessions, these traders are likely to panic, throwing orders into the market to exit at any price, just to stop the accumulation of red ink on their trading statements. This can have the same trend reversal effect on the market as those liquidating profitable positions. In either case, one can make a convincing argument for the use of protective stops at the end of a trending day. One can easily see all the profits that were accumulated throughout the day quickly evaporate in the face of one of these late-day corrections if a proper protective strategy is not implemented.

As you can see in Figure 9.2, near the end of the trading day a protective stop placed at the most recent Category 2 resistance level was in fact activated as the market traded through it at 2:06 P.M. In this case the use of the protective stop was of little consequence as the market closed relatively near our earlier exit point.

In these two brief examples I have illustrated how dual oscillator indicators can be used in conjunction with market-defined support and resistance to reduce significantly the number of losing trades generated by using the dual oscillators alone. Chapter 11 will deal with the use of the dual oscillators in combination with the Directional Day Filter, which restricts trading to only the major trend of the day. Finally, Chapter 12 will deal with the use of combinations of the Directional Day Filter and dual oscillators along with support and resistance.

## CHAPTER REVIEW

1. Buying and selling windows are opened when various combinations of oscillator indicators identify a general area in which trading signals may be generated.
2. Positions are actually taken when the market violates previously defined support or resistance areas.



# 10

## DIRECTIONAL DAY FILTER

Think about your day trading activities for a moment.

The profits were exciting and rewarding.

The losses were awful.

More wins would be great.

But, fewer losses can truly turn your day trading into the profitable enterprise you first envisioned when you entered the world of the active day trader.

The often quoted trading axiom “Let your profits run and cut your losses short” is as accurate and worthy of your attention today as the day it was first stated by someone long ago. But now let’s add another concept to this basic idea of trading.

Imagine what your bottom line could look like if you had an accurate method of reducing your number of losses by even 15 to 20 percent.

One of the purposes of this book is to teach you to increase significantly the proportion of winning trades executed each trading day. Here is where we start this important process: Trading only in the direction of the dominant trend for the day can significantly reduce the number of losing trades that are taken during the course of your busy trading day.

The Directional Day Filter is designed to accomplish this exact purpose—define the major trend of the day early enough in the session to make this determination useful for the majority of the trading session.

## OPERATING THEORY

Look at the intraday price chart of any contract or security, concentrating on the early portion of each trading day. Observe the occurrence of the highs and lows that are registered during this early time frame. Regular observation of intraday price charts will soon reveal the fact that, quite often, the high or the low of the day is established early in the trading session, often within the first 60 to 90 minutes of the day. This basic fact of market behavior is the basis for the operation of the Directional Day Filter.

It is here that market psychology enters into the performance of this trading tool.

For a stock or commodity to trade higher for the rest of the day there obviously must be more buyers than sellers. As the trading public reacts to positive fundamental news concerning the issue in question, interest rate movements, government reports, earnings news, or the myriad of additional factors making up the fundamental picture that affects the price of a stock, a buying interest develops early in the day. Buying activity in a stock or commodity soon attracts more interest on the buy side as others become aware of the news and either enter new long positions or rush to cover their short interests in the face of a rising market. And, yes, technical traders such as ourselves enter on the buy side due to the technical factors that identify a rising market.

Since the basic fundamental news concerning a stock rarely changes through the trading day, the same fundamental factors will continue to spur buying activity during the day.

The Directional Day Filter measures this buying activity and predicts the basic trend of the day.

This filter is a highly effective, yet simple routine that is used during the initial portion of the trading day to define the major trend of the current day. After mastering the interpretation of this simple concept, you will be able to predict with a high degree of accuracy an uptrending day, a downtrending day, or a sideways, trendless day.

The accurate interpretation of trading indicators is frequently as much an art as it is a science. It is only after careful, extensive observation and study that most traders become familiar and comfortable with an indicator such as this to the extent that they have the confidence necessary to use it in actual trading situations. Carefully study the following pages, as this indicator can be a very powerful tool to assist you in your intraday and eventually overnight trading.

We will first concentrate on a detailed discussion of the construction and strict interpretation of the Directional Day Filter. Following the section on the basics of the tool we will include a considerable number of actual price charts taken from real markets, going through extensive descriptions of the actual application of this indicator. Careful study of these selected charts will begin to give you an appreciation of the many different and varied ways this indicator can be utilized in your trading. But it will only be with the close observation of many, many days of intraday charts as they unfold during market hours using this tool that you will gain the knowledge necessary to make full and proper use of this unique indicator.

## **TREND OF THE DAY**

As mentioned, this tool is used to define the trend of the market in question for the remainder of the trading session. The seasoned chart observer will agree that quite often the high or low of the trading session will be established within the first hour of the day. This trading aid attempts to determine whether the high or the low of the day has been established early in the session. If the low is established, then we will expect any range expansion that will occur for the rest of the day to be on the high side of the market. In other words, if we are certain that the low of the day is in place, we will then expect a series of new highs to be established as the trading session progresses. If, on the other hand, we can determine with a reasonable degree of certainty that the high of the day has been established by a given time, we should then see any range expansion develop on the low side of the market with a series of new lows established for the remainder of the day.

Thus our definition of an uptrending day is a day in which the low

is established for the market early in the day and one or more new highs are made during the remainder of the session.

Conversely, our definition of a downtrending day as indicated by this trading tool is a day in which the high of the day is established early and the rest of the day is featured by the establishment of at least one new low for the day.

It is quite important to understand these definitions and keep them in mind as we move through the trading examples in later chapters.

## WHY IS THIS IMPORTANT?

One of the most basic theories of trading is the concept of trading in the direction of the dominant trend in the market. The old adage “The trend is your friend” should never be forgotten by the serious trader. It is a concept vital to your financial survival.

Trading with the trend is important regardless of the time frame of your trading environment. It is just as important for trading on a daily, weekly, monthly, or, in our case, an intraday chart.

Working with many traders over the years, I have noticed one thing common to beginning traders—the attitude that they “just know” that the top of the market has been made for the day and that “it’s just got to go lower from here.” There are a variety of trading tools and attitudes that can create this false impression for many traders.

The usefulness of the Directional Day Filter is to keep the perspective of the day trader on the bigger picture. Quite frequently, especially when working with extremely short time frames, the active day trader will lose perspective of the entire day when concentrating on the extremely narrow focus of perhaps only a few minutes.

The concept is quite basic. If you have defined an uptrending day, you will take only the buy side of the market, thereby trading with the trend of the day, which is higher. If you have determined that the dominant trend is lower, you will trade only the short side of the market, again in the direction of the dominant trend. If you have determined that there is no dominant trend for the day, you can be confident in taking trades on both sides of the market, understanding that there probably will be no extended moves in any one direction for the remainder of the trading session.

This concept of trading in the direction of the dominant trend is



useful not only for entering trades. It also finds important uses when the time comes to exit your trade.

The oscillator indicators we will use to define entry points for trades will give both buy and sell signals throughout the course of any trading day. During an uptrending day, the sell signals issued by our oscillator indicators will not be used to establish new short positions, since these trades would be taken opposite to the major trend of the day. Instead the sell signals can be used as criteria to be considered for the exiting of a long trade. Oppositely, buy signals given on a downtrending day can be used as exit points for existing short positions.

In Chapter 1, "Day Trading Methods and Philosophies," mention was made of a long-term day trading strategy. This type of trade attempts to stay in a trend for most of the day. Using the Directional Day Filter to get you in a trade in the right direction for this long-term transaction is an option certainly worth considering.

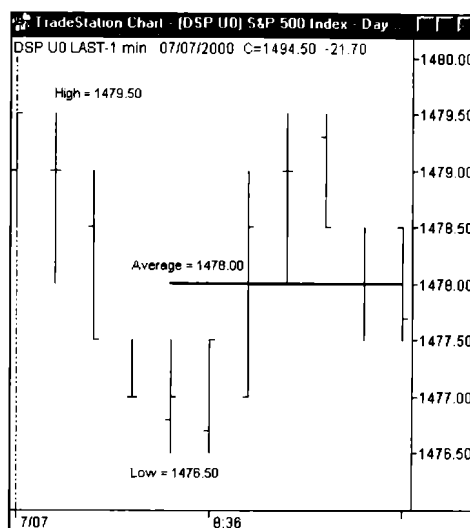
## HOW IT WORKS

The Directional Day Filter is actually more of a chart reading tool than an indicator itself. Although it can be programmed to plot on your screen and give actual trading alerts automatically, it is not necessary to do so. A simple interpretation of a chart pattern early in the day will give the trader all the information necessary to determine the major trend of the day.

After five minutes of the market day has passed, record the highest price the market has reached at this point in time. Also record the lowest price of the day thus far. Be sure to use only the day session data in your calculations; no overnight data is to be included here. From the data you have recorded, an average price for the first five minutes of the day can be calculated by adding the two recorded prices and dividing by two. The resulting price is the critical price level you will use for the rest of the trading session to determine the trend of the day.

Figure 10.1 illustrates this simple, yet critical, calculation.

For this illustration we'll use data from the S&P 500 futures market from July 7, 2000. Note that this is a one-minute chart, with each bar graphing all the price activity for each minute of trading. Note that the high of the day during the first five minutes of trading was established on the first two bars of the day at 1,479.50. The low for



**Figure 10.1** The first step in the calculation of the Directional Day Filter is the determination of the average range of the first five minutes of trading.

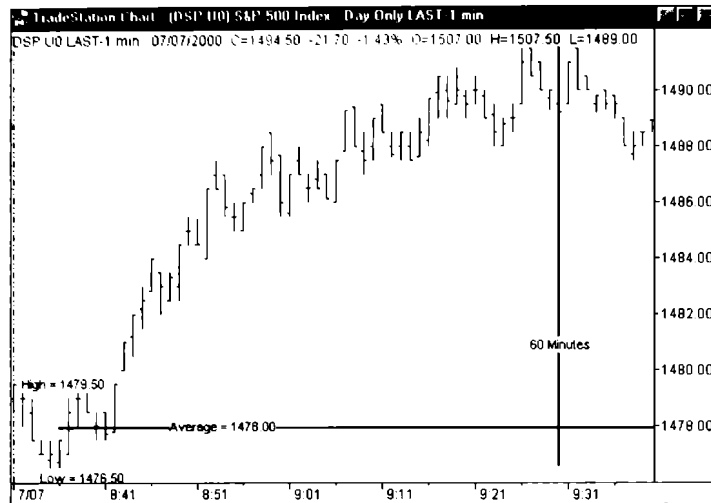
Chart created with TradeStation® 2000i by Omega Research, Inc.

our period of interest was placed by the fourth and fifth bars at 1,476.50. Simply averaging the two prices ( $1,479.50 + 1,476.50 = 2,956$ ;  $2,956 \div 2 = 1,478$ ) gives us our average price of the first five minutes of trade of 1,478. This average price is marked on the chart by the heavy black line beginning on the 8:35 A.M. bar and extending to the right of the chart.

Although I am using a standard five-minute calculation time throughout the book, readers are cautioned that other time frames could be more appropriate for other individual stock issues or contracts. Traders should undertake careful study of each issue or contract to be analyzed with this indicator using multiple time frames for calculating the average. Such research may reveal a more useful setting for the filter when adapting it to your individual trading style.

The next critical chart examination for the use of the Directional Day Filter comes after the market has traded for one hour. It is at this point that you will determine, with a high degree of likelihood, the dominant trend for the remainder of the trading session.

The vertical bar placed on Figure 10.2 identifies the first 60 minutes of trading for the day in question. It is at this time, in most instances, that you will be making the initial observation involving the



**Figure 10.2** The second portion of the Directional Day Filter is a vertical bar drawn after 60 minutes of trading that extends from the intraday high to the intraday low at this point in time.

Chart created with TradeStation® 2000i by Omega Research, Inc.

Directional Day Filter. At this point it is critical to determine the amount of market activity that has occurred both above and below the line marking the average of the first five minutes of trading.

If there is substantially greater activity above the average line than below the line at this time of the session, the odds are significantly in favor of the trend for the rest of the day to be higher. Conversely, if there is more market activity below the line than above, there is a greater tendency for the market to trade lower for the remainder of the trading session in question.

Additionally, it is important to note the close of the bar that is present at the time the above determination is made. In other words, if the determination of the amount of activity is to be made 60 minutes into the trading day, then pay close attention to the close of the bar that marks this time on the chart. If the close of this bar is significantly above our average line, there is now additional evidence that the remainder of the day will show a higher trend. If the close of this bar is significantly below our average line, then we have further likelihood of new lows being made later in the session, thereby producing a downtrend for the rest of the day. Closes of this bar that lie relatively

close to our average line would tend to give the interpretation of the trend for the day as outlined by this trading tool a more neutral flavor.

The measure of activity to which I refer on these charts is defined as strictly the number of trades that have occurred above or below our average line. This does not refer to the number of closes, the number of highs, the number of lows, the number of complete bars, and so forth. It is strictly an observation of the general amount of trading activity that has occurred on either side of this critical average line that we calculated earlier.

Although it is certainly possible to calculate the number of trades above and below our average line and keep a running total of these values as the trading day progresses, it is not usually necessary to do so. Again, recall that many of these tools work as they do because they are used extensively by the many people who trade these markets. Most of these traders watch this activity and interpret the unfolding patterns strictly by observation. Therefore it is also wise for you to make the same observations.

Since this tool is intended to be interpreted strictly by observation of the amount of activity both above and below the line at a particular time in the trading day, there will obviously be days and times at which there is no observable difference in these two activity patterns. The trader will, on selected days, have difficulty in determining if the activity above the line is greater than that below the line, or vice versa. When you find yourself in this situation, there are two routes of activity that you may pursue from this point forward.

The most frequent, and usually the most accurate, interpretation of this type of chart pattern will be to classify the trend for the remainder of the trading session as a sideways day, or one in which no definite trend is expected to develop as the trading day progresses into the close of the day. On the days when a trendless day is expected from the observation of the Directional Day Filter, the trader can have equal confidence in taking trades from both a long and a short perspective. Since the development of a dominant trend is not anticipated, those minor trends that do appear are not expected to remain active for any substantial period of time and can be projected to reverse after moving in any particular direction for a relatively limited objective, both in time and price. Therefore both long and short trades should have trading potential on these defined sideways days.

Secondly, one may wish to observe the relative activity above and

below the line once again at a point a bit later in the day and reassess the determination of the major trend of the day at this point. This may be particularly true on certain days when the trader, from a fundamental or technical point of view, feels a definite trend should develop sometime during the trading session. Although delaying this prediction is certainly acceptable, I would personally not extend this observation point beyond two and a half hours into the trading session. I would restrict the determination to this time frame mainly due to the fact that the 60- to 90-minute time frame has been shown by extensive research to be highly reliable. When you do discover that a particular technical indicator is quite accurate when used in a set manner, it is often not wise to override the output of such a tool. Working with many traders over the years, I have often heard the comment, "Had I just followed my own trading rules I wouldn't be in this much trouble with my trading account."

In Chapter 2, which discusses various aspects of trader psychology, I mentioned not following a system as a significant factor in the failure of a number of traders. Here is an example of how this problem can develop. If you have determined that 60 minutes is the correct time frame for your stock, stick with this parameter setting until further research dictates a change. Don't make such a basic change in your trading routine just because 50 minutes or 70 minutes would have been better for that last trade.

As we will discuss further in this chapter, individual traders may wish to use times other than the first hour of trading to assess this market factor. Your own individual trading style will certainly dictate the manner in which you use not only the Directional Day Filter but also many of the other tools that we discuss in this book. The important point is that you apply the tools in a consistent manner that is compatible with your own personal style and comfort level.

Also, since various markets have their own personalities with respect to the individual trading tools discussed in this book, there may be, for each individual market being observed, selected prime times that are used most effectively for the determination of the trend of the day.

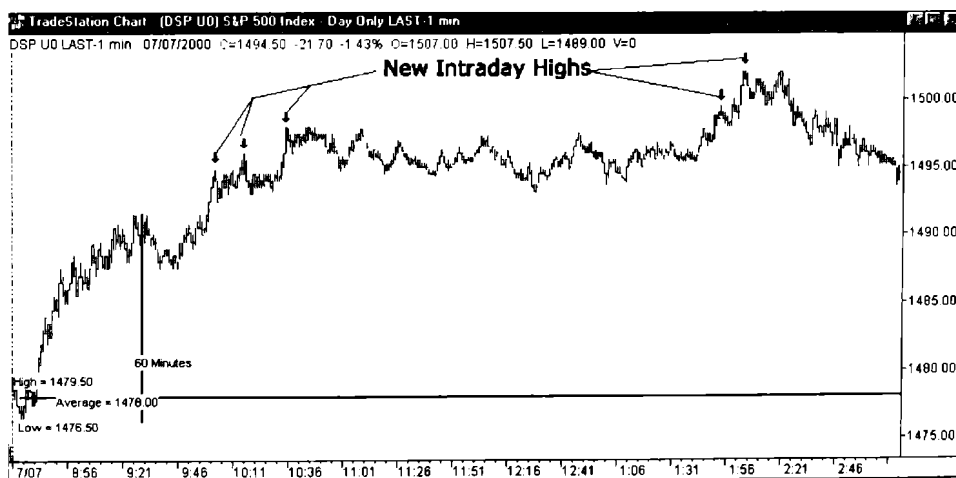
Observation of several stock issues that display varying levels of early-morning activity have revealed that the so-called prime time at which to determine the trend for the rest of the day using the Directional Day Filter can vary from as soon as 30 minutes into the trading day to well over 90 minutes.

See the data tables in the Data Appendix for more details on the application of various determination times on several stock issues.

In Figure 10.2 we have determined that almost all of the activity 60 minutes into the trading day is above our average line, suggesting the trend for the remainder of the day on this chart should have an upward bias. An additional indication of an uptrend is given by the close of the 60-minute bar being found considerably above the average line. Figure 10.3 below contains the complete chart for the day in question.

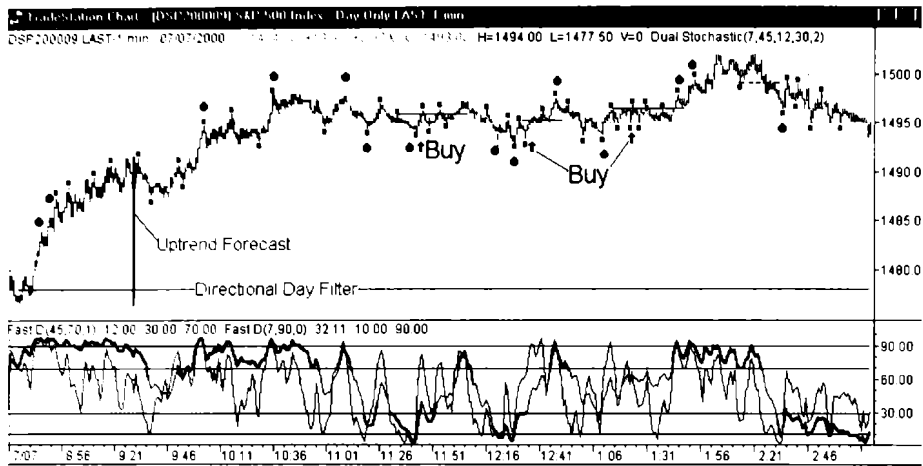
In the chart you will observe five black arrows that identify the new highs for the day as the trading day progresses. Note that five new highs were made for the day while the low for the day remained unchanged. Thus the day meets our definition of an uptrending day.

Also note on this chart the many small downtrends that develop during the day. When exhausted, these provide excellent opportunities to enter the market in the direction of the dominant trend (higher). Later in this book we will detail methods by which traders are able to not only identify these exhausted downtrends but also pick highly accurate points for entry into the market for the next move higher. The chart in Figure 10.4 will be used later in these explanations. Briefly, trades are generated only on the long side, which is in the direction of the major trend of the day. Although this is by no



**Figure 10.3** Arrows detail five new intraday highs following the prediction of an uptrending day by the Directional Day Filter.

Chart created with TradeStation® 2000i by Omega Research, Inc.



**Figure 10.4** Only long trades are taken on days when the Directional Day Filter is forecasting an uptrend for the session.

Chart created with TradeStation® 2000i by Omega Research, Inc.

means a perfect day to trade this or any other system, the methods used here can be successful in both taking a few small profits from the market and, more importantly, keeping us out of trouble by not trading against the trend.

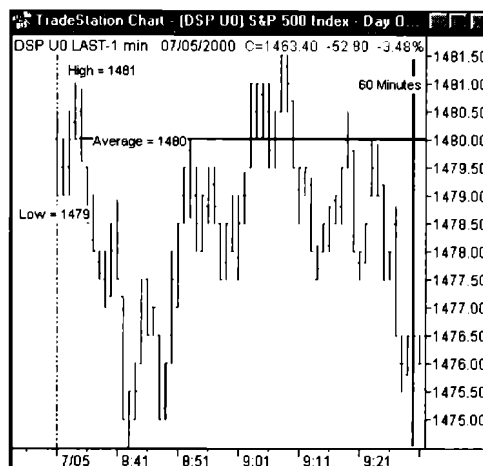
Now let's examine a day displaying the opposite trend.

Figure 10.5 displays the one-minute chart of the S&P 500 futures from July 5, 2000, for the first 60 minutes of trading for that day.

First of all, note that the horizontal black line represents our average price of 1,480 and that the vertical bar marks the 60-minute point of the day.

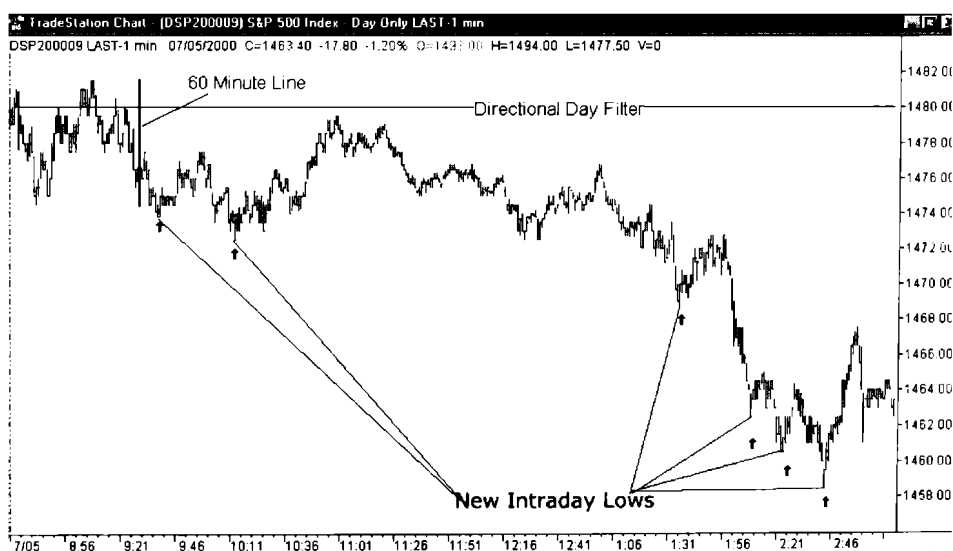
Clearly, the majority of the trading activity in this case lies below the average line on the chart. Additionally, the close of the 60-minute bar at 1,476.50 is significantly below the average line and is relatively near the low of the day, also suggesting the tendency of the market to make additional new lows for the remainder of the session. If the established high for the day so far is not broached by trading activity then the chart will have met our definition of a downtrend for the remainder of the day.

Figure 10.6 represents the remainder of the trading activity for the same day. Note that, as expected from the interpretation of the Directional Day Filter, a persistent downtrend developed. There



**Figure 10.5** With the majority of market activity below the horizontal line prior to the 60-minute line, the Directional Day Filter is forecasting a downtrend for the remainder of the session.

Chart created with TradeStation® 2000i by Omega Research, Inc.



**Figure 10.6** As expected from the forecast on Figure 10.5, several new lows occur during the balance of the day.

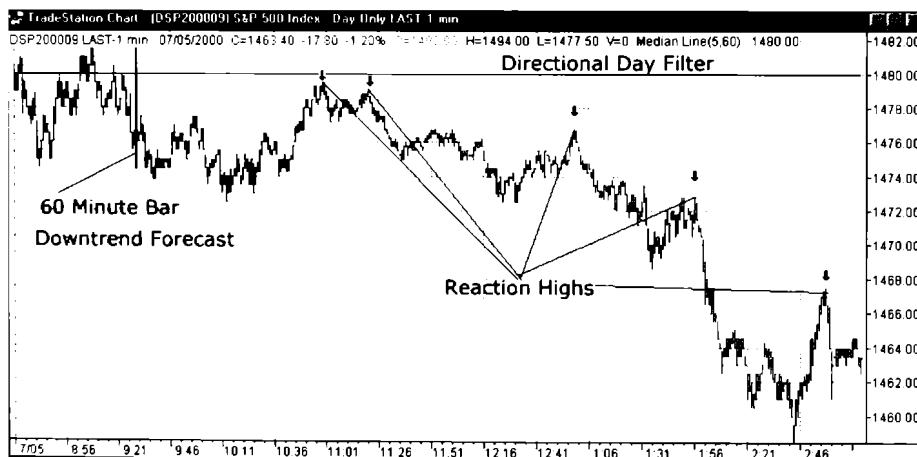
Chart created with TradeStation® 2000i by Omega Research, Inc.



were six distinct new lows established during the rest of the market session, as marked by the series of upward-pointing black arrows on the chart. Also, note that there were no new highs for the day. Thus this day clearly meets our definition of a down day as forecast by our indicator.

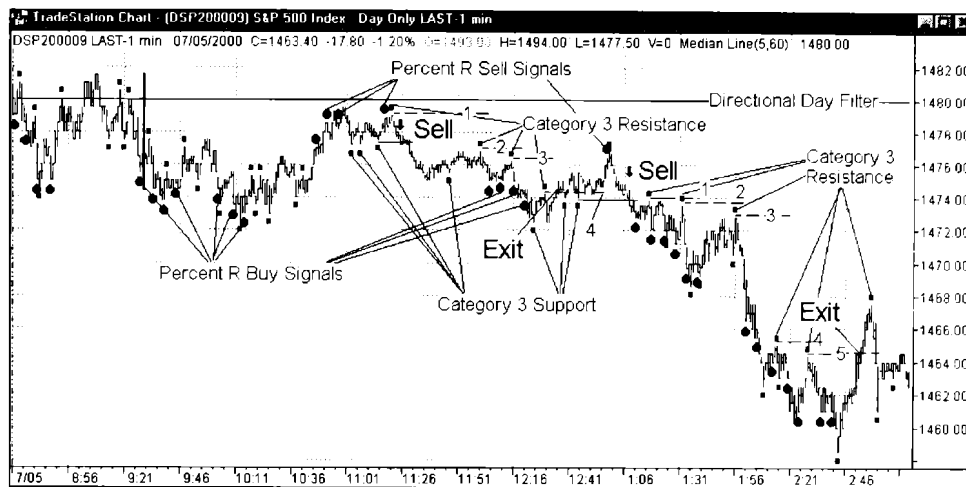
Again, note that between several of the new lows made for the day, there were distinct reaction highs charted by the market. These swing high points mark excellent opportunities to enter the market on the downside to participate in the major trend of the day. Figure 10.7 clearly identifies these reaction highs.

Accurate methods for the identification of these points in real time will be discussed in detail in later chapters of this book. Figure 10.8 of the same day will be used to detail the actual placement of longer-term trades in the direction of the major trend as well as shorter-term, higher-risk entries against the major trend. This chart is included here to give the reader an appreciation of the ultimate use for the Directional Day Filter. All details of this chart will be explained in Chapter 12, "Putting It All Together."



**Figure 10.7** The down arrows identify exhausted corrections in the persistent downtrend forecast by the Directional Day Filter. Readily available oscillator indicators are effective tools for the isolation of these points.

Chart created with TradeStation® 2000i by Omega Research, Inc.



**Figure 10.8** The Directional Day Filter allows the trader to enter only in the direction of the dominant trend. Two short trades are illustrated.

Chart created with TradeStation® 2000i by Omega Research, Inc.

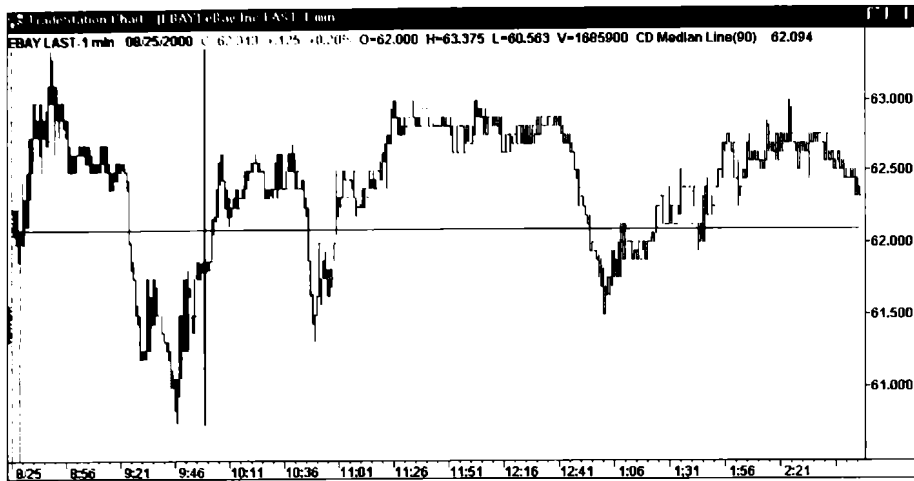
## SIDEWAYS DAYS

As mentioned earlier, there are days when the Directional Day Filter is useful in the identification of a purely sideways trend for the day in question. On these days the trader can feel confident taking trades on both sides of the market, trading from both the long and the short side.

On the one-minute chart of eBay in Figure 10.9, note that there is nearly an equal amount of activity above and below our calculated line at the determined analysis time of 90 minutes, which has proven effective for this particular security.

Consequently, the trader can take both long and short positions on the day in question. During such days we do not expect major trends to develop. Such days probably occur due to a lack of new information concerning the security. It is also possible that there is an announcement expected in the near future that may affect the price of the stock. If so, most traders will be reluctant to make position changes in the security until these conditions change. Thus, very little movement takes place on such days.

The very definition of a sideways day is that there will be little activity one way or the other. Traders can have increased confidence in buying exhausted declines and selling exhausted rallies on such days.



**Figure 10.9** Market activity approximately equal on both sides of the horizontal line previous to the vertical line is a forecast of a sideways, trendless day by the Directional Day Filter.

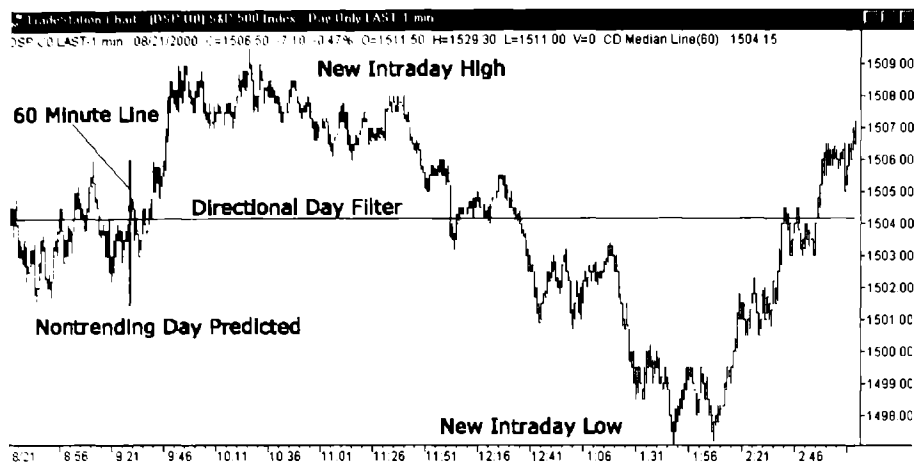
Chart created with TradeStation® 2000i by Omega Research, Inc.

In Chapter 11 we will discuss the use of several oscillator indicators and their unique use to enable the trader to enter the market on exhausted corrections from the major trend of the day. Obviously, on some of these days the trend will be forecast as nontrending, as is the case on the August 25, 2000, chart of eBay (Figures 10.9 and 10.10). On such sideways days these oscillators can be very effective trading tools. The Directional Day Filter is a very valuable tool to determine how these oscillator indicators will be used on any given day.

As will be described in detail later, dual settings of these oscillators can be quite effective trading tools when applied to nontrending days. Figure 10.10 details the trades generated by a system using two diverse settings of the popular Relative Strength Index (RSI). As you can see, the trades placed by this use of the RSI indicator were fairly effective in catching the apex of each price swing as it was about to play out. Using sensible money management strategies along with this system would have resulted in an effective trading session by most standards.

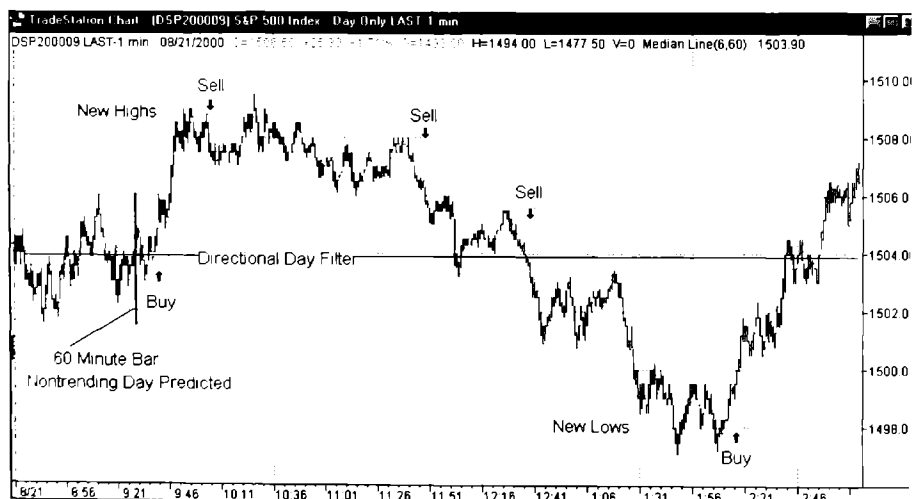
The actual operation of the dual indicator setting strategy was covered in detail in Chapter 6, "Use of Multiple Indicator Sensitivity Settings." This chart is an example of the importance of the identifi-





**Figure 10.11** A sideways day is forecast by the Directional Day Filter as the activity is fairly well distributed during the first 60 minutes. The setting of both new intraday highs and lows confirms the sideways trend.

Chart created with TradeStation® 2000i by Omega Research, Inc.



**Figure 10.12** During sideways trading days both buy and sell signals may be taken with confidence.

Chart created with TradeStation® 2000i by Omega Research, Inc.

first establishes intraday support and resistance points and then breaks through them during subsequent market action. As you can see on this chart, both buys and sells are indicated as a result of this day being classified as a nontrending session. Some strategies are much more effective on nontrending days such as this one, while still others find their major use on trending days. The Directional Day Filter is a valuable tool since it provides the trader a sense of the direction of each session fairly early in the day, enabling the trader to select an appropriate trading solution for the situation at hand.

### **SUPPORT AND RESISTANCE AS DEFINED BY THE DIRECTIONAL DAY FILTER**

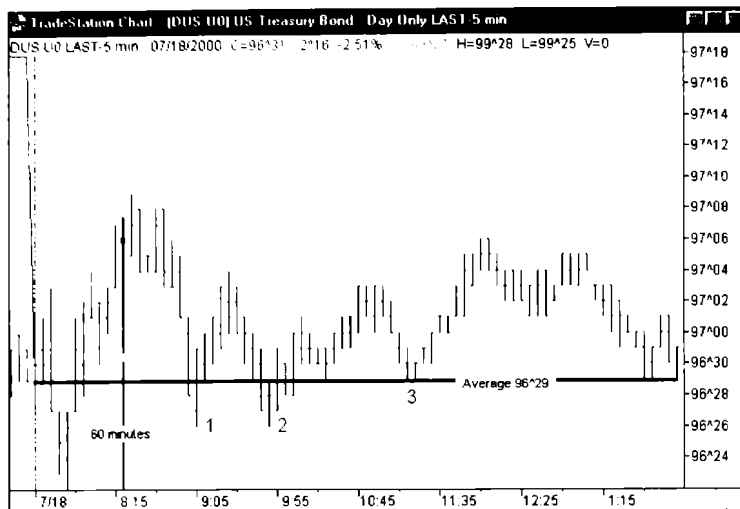
There is an additional observation of the Directional Day Filter that often signals significant support or resistance for selected market movements. Frequently the market will be turned by the price levels represented by this line.

On the U.S. T-bond chart in Figure 10.13, note first that the Directional Day Filter is clearly predicting an uptrending day. There is significantly more activity above the plot representing our indicator than below the line. Additionally, the close of the bar that represents the analysis time of 60 minutes is also significantly above the Directional Day Filter line.

Note that on three separate occasions, labeled 1, 2, and 3 on the chart, the uptrending market retreated, attempting a correction of the current up move. In all three instances the market turned back higher in the vicinity of the line plotted by the Directional Day Filter. Placing a buy order on the plotted line would have resulted in a four- to five-tick move higher in each instance. In all cases the risk on these trades was limited to three ticks or less.

This chart is an excellent example of a method by which this trading tool can be useful even on a day when a dramatic up move did not occur after being signaled by this indicator. Even though we were not able to capture an extended rally, we were able to participate in several minor moves in the direction forecast by the Directional Day Filter.

For an additional example of resistance as defined by the Directional Day Filter, let us once again refer to the S&P chart used earlier in this chapter.



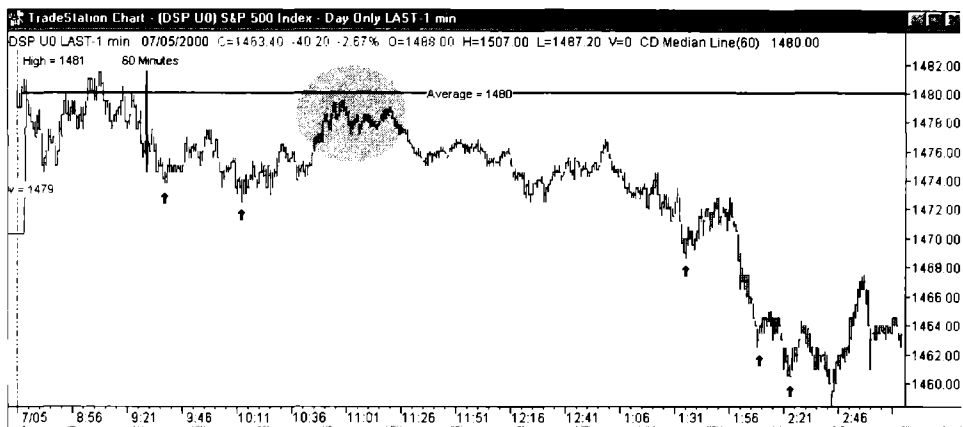
**Figure 10.13** The Directional Day Filter line often acts as support on pullbacks.

Chart created with TradeStation® 2000i by Omega Research, Inc.

In Figure 10.14, note the area of the chart as marked by the gray ellipse during the 10:45 to 11:15 A.M. time frame. Note that the market has made a significant attempt to put together a rally in an effort to correct the down move that had dominated the price activity early in the trading session. As the market approached the plot line of the Directional Day Filter, note that it was repeatedly turned away by the presence of this line, thereby reinforcing the earlier interpretation of this indicator, which is calling for a downtrend for the rest of the trading session. Note the ensuing negative behavior of the market. Subsequent charts in this section will demonstrate additional uses of this activity of the Directional Day Filter.

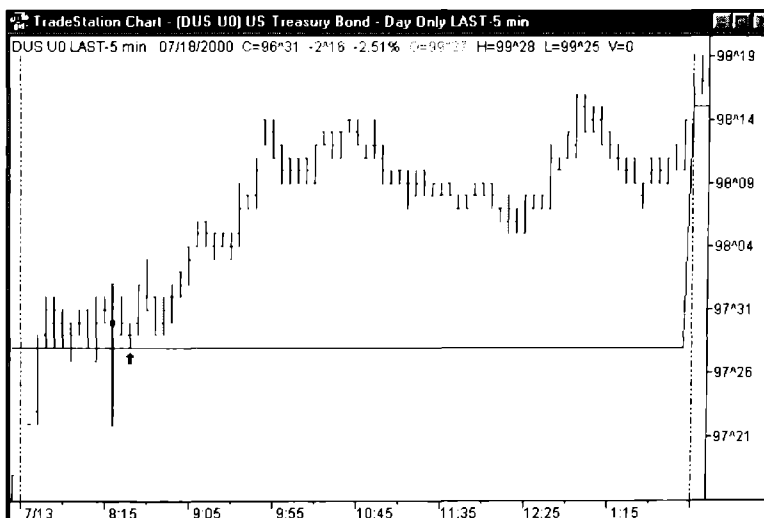
Figure 10.15 is an additional chart of the 30-year T-bond (U.S. Treasury bond) market showing an uptrend forecast by our filter followed by a bounce off the support line. The support defined by our indicator is marked by a single black upward-pointing arrow.

Although this bounce off the support line seems to come rather close to the determining time for trend interpretation, note that this is a five-minute chart. An astute trader would have had at least five minutes during which to make the chart interpretation and place the appropriate orders.



**Figure 10.14** The market frequently respects the Directional Day Filter line as resistance on downtrending days.

Chart created with TradeStation® 2000i by Omega Research, Inc.



**Figure 10.15** The bond market finds support at the Directional Day Filter line shortly after the forecast of an uptrend by this indicator.

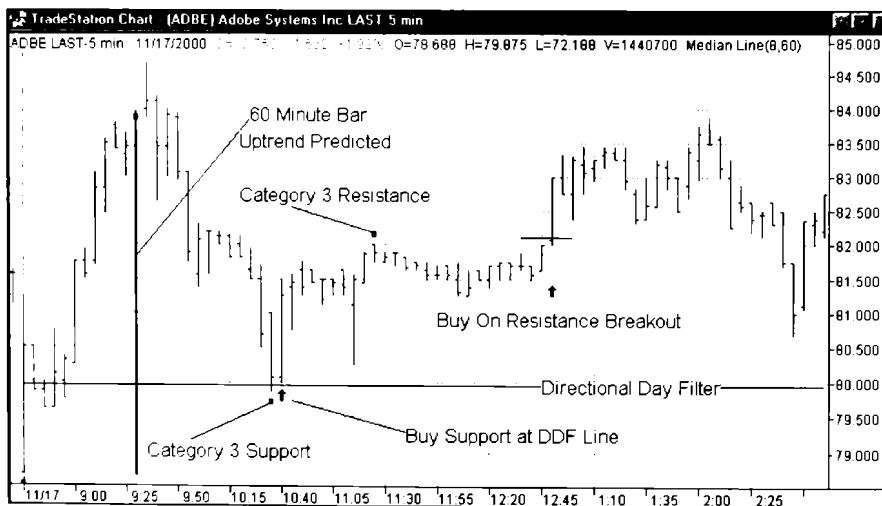
Chart created with TradeStation® 2000i by Omega Research, Inc.



Figure 10.16 describes an alternate method of trading the Directional Day Filter on days with an unusually wide opening range.

Although it is not evident on this five-minute chart of Adobe Systems Inc. (ADBE), the 60-minute range as marked by the heavy black bar on the chart is within 25 percent of the average daily range for the prior week for this security. Frequently, when this early range is approaching the range normally achieved during an entire day of trading, it is quite possible that most of the energy of this market has been used up in the early going. Average daily range tends to be quite consistent in most markets. Although the occasional big day can significantly surpass this average, the more likely occurrence is that the range of the current day will end the day quite close to this average.

Consequently, when one observes the intraday range at the 60-minute mark approaching the average daily range, you are forced to consider the possibility that most of the daily range has already been established. With this in mind it probably isn't a good idea to bet on much of a breakout above or below the range for a trading opportunity.



**Figure 10.16** When the early range of an issue approaches its average daily range there is frequently little energy left in the market for a sustained breakout. Note that once again the Directional Day Filter line has provided support.

Chart created with TradeStation® 2000i by Omega Research, Inc.

nity. However, as shown in the chart, there is still use for the Directional Day Filter on such a day.

Our filter in this case is giving a strong indication that the trend of the day will be higher. Although it is unlikely that new highs will be made, we still are presented with a trading situation that favors the long side. Recall from previous discussions that the Directional Day Filter line will often provide support on any pullbacks during a rallying day. This chart provides an excellent example of this situation as the market bounces nicely off this line in the 10:30 A.M. area. As shown, buys in this area can be a low-risk trade.

Later in the same day the tendency for a day such as this to rally is again demonstrated as the market establishes a profitable long trade as it breaks above Category 3 resistance near the end of the noon hour.

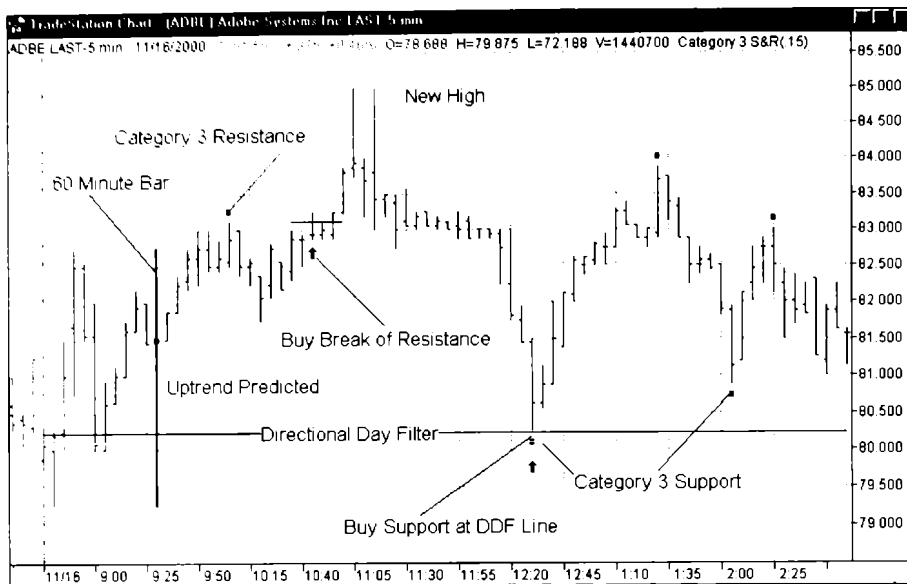
Although these situations do not present themselves on a regular basis, it is a good idea to keep this strategy in mind for use when trading the early breakouts is not a practical approach to the market.

Figure 10.17, a chart of ADBE, displays two distinct uses of the Directional Day Filter. At the 60-minute mark the majority of the market activity is clearly above the filter line. Also, with the close of the 60-minute bar well above the filter line, the trend for the remaining portion of the trading session is higher.

One of the highest-probability entry methods we will cover in this book involves the placement of buy and sell stops above and below resistance. This topic is discussed in detail in Chapter 13. The combination of using this strategy in combination with the trend forecast by the Directional Day Filter can be an effective tool for the generation of high-probability trades.

Such a trade is illustrated in the chart as this strategy buys the breakout of the resistance marked by the Category 3 resistance point.

A second trade generated courtesy of the Directional Day Filter appears as the market tests support formed by the filter line. Since we are working in an environment with a 75 percent plus probability of trending higher during the day, the odds of buying this pullback to our line are definitely on our side. Incidentally, also notice the Category 3 support point that appears as the market pulls back to the filter line. Although this point, by definition, cannot be completed until three bars have formed beyond the marked buy area, the observation of the convergence of two highly reliable support formations gives us



**Figure 10.17** Two long trades are generated on this uptrending day, one as a result of breaking overhead resistance and one due to support provided by the Directional Day Filter line and Category 3 support.

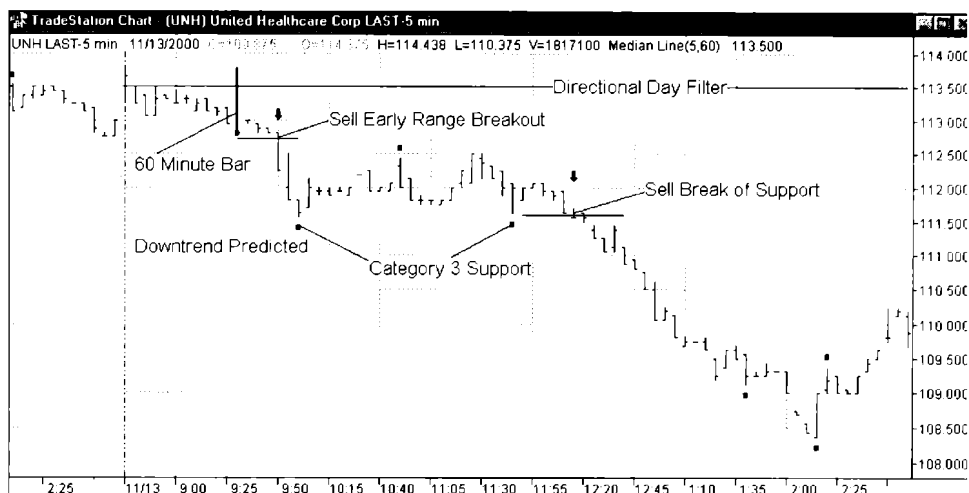
Chart created with TradeStation® 2000i by Omega Research, Inc.

additional confidence to use the pullback buy strategy each time it presents itself.

By definition, when a specific trend forecast is given by the Directional Day Filter we expect either new highs or new lows to be formed during the remainder of the trading session. We are also expecting, as per the same definition, that the range of the day after the session has ended will be greater than the range indicated by the 60-minute bar early in the day. It therefore follows that the range should expand only on one side of our early range.

This brings us to one of the more reliable uses of this trading tool. Since we are expecting the range to expand in one direction only, we can profit from this knowledge by placing a buy stop above the high of the day if we are expecting an upward trend to develop for the rest of the day. Conversely, if our indicator issues a downward bias we can place a sell stop below the early range.

Figure 10.18 illustrates such a trade in United Healthcare Corp. (UNH). The trend for the day at the 60-minute mark is clearly down,



**Figure 10.18** The initial short position is established as the market breaks out of the early range low. An additional short position is entered as support is broken later in the day.

Chart created with TradeStation® 2000i by Omega Research, Inc.

as the majority of the trades so far have occurred below the filter line and the close of the 60-minute bar is clearly located near the low extreme of the early range. Since we are expecting the range to expand on the downside on this day, we will place a sell stop slightly below the range as indicated by the solid horizontal line on the chart. The short position is filled as the market trades through our sell stop.

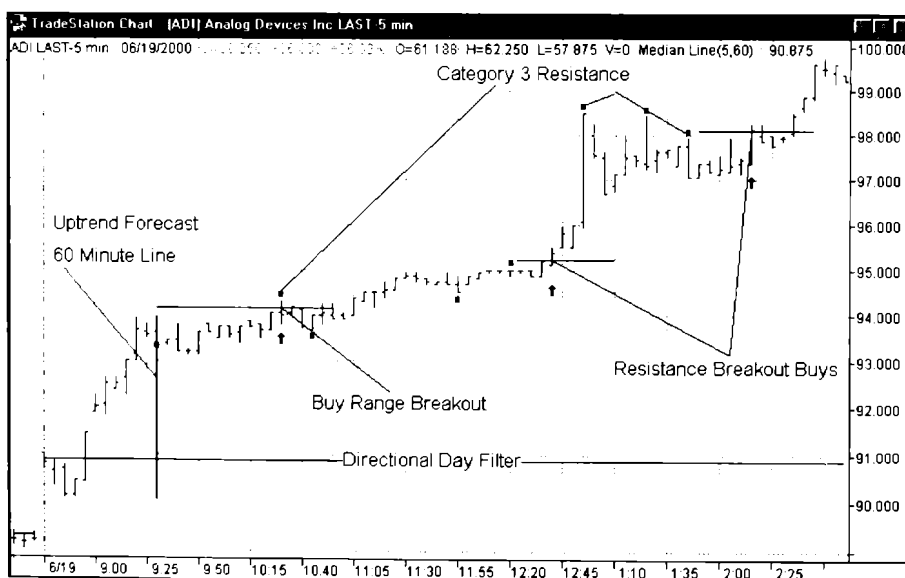
Exiting the trade now becomes a function of the trading style being used. If one is a long-term day trader, it is certainly acceptable to hold such a trade into the close in anticipation of capturing the entire move of the security. Other shorter-term exit strategies can be used in the case of the trader who is not comfortable with the additional risks involved in this long-term approach.

An additional trade in the direction of the major trend is also isolated on this chart that may be used either by those wishing to trade several times through the day or as a point to add to a profitable position by those holding onto the trade for the entire day. This trade appears as a break of support created as a result of a corrective rally that occurred shortly after the first new low of the day was placed at 10:00 A.M. The break of this support leads to the major decline that was projected much earlier in the day by our trading filter.

This five-minute chart of Analog Devices Inc. (ADI) (Figure 10.19) demonstrates the use of the Directional Day Filter to generate a long breakout trade.

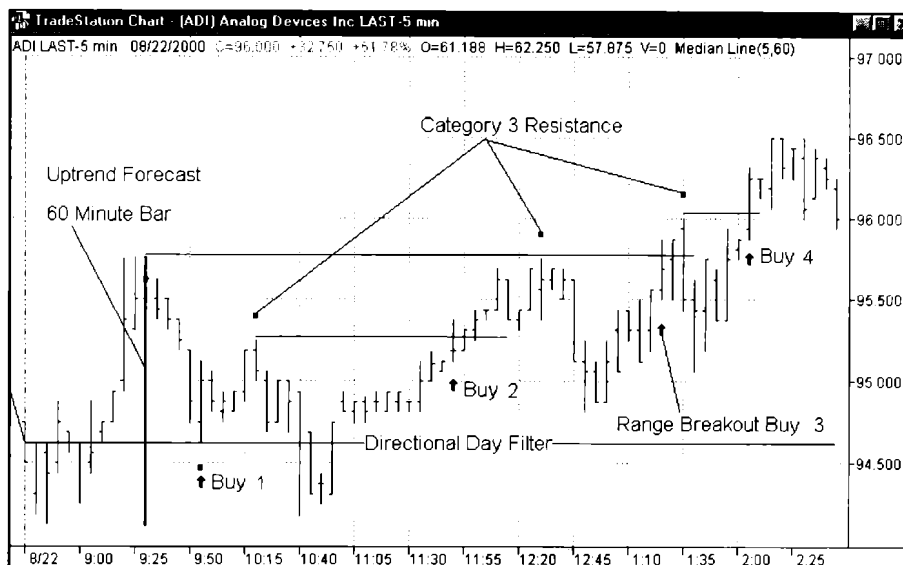
The trend of the day is identified as higher since the majority of activity is above the filter line and the close of the 60-minute bar is also far above this line and near the intraday high at this point. Since we are expecting any range expansion to be expressed by regularly raising the intraday high, we first place a buy stop above the intraday range as marked by the 60-minute bar. This position is filled about an hour later as the market trades through our stop.

Additional trades indicated on the chart occur as overhead resistance created by market activity is eventually broken as the rally extends itself. Two such trades are illustrated on the chart. The construction, application, and interpretation of several support and resistance chart formations was covered in detail in Chapter 7, "Market-Defined Support and Resistance Categories."



**Figure 10.19** Long positions are established in the direction of the major trend upon breaking the high of the early range and breaking resistance twice later in the day.

Chart created with TradeStation® 2000i by Omega Research, Inc.



**Figure 10.20** Four distinct long entries are enabled by the forecast of an uptrending day by the Directional Day Filter.

Chart created with TradeStation® 2000i by Omega Research, Inc.

On another ADI chart (Figure 10.20) we can demonstrate several trading possibilities using this indicator.

At the 60-minute time frame in this case the trend forecast for the remainder of the session is not as clear as on some days. Note that the amount of activity above and below the filter line looks to be a bit in favor of the high side, but not convincingly so. However, the close of the 60-minute bar lies within 10 percent of the top of its range. It is also obvious that the bulk of the intraday range at this point is above the filter line. These items, along with the rally that preceded the plotting of the 60-minute bar, tend to give the day an upward bias and, combined with the slightly higher component provided by the market activity slightly on the high side, can give us reason to classify the trend for the remainder of the day as sideways to higher.

Our first trading opportunity, labeled Buy 1, arises as the market briefly kisses the filter line and then moves higher for a few bars. A buying opportunity arises at this point. Although the market does eventually pull back once again to challenge the validity of the filter line, the low of the day holds, maintaining our forecast higher tendency for the day.

As the market pulls back from the intraday high that plotted the 60-minute bar, a resistance area is created about midway through the pullback. Although some time is required for the market to mount a challenge to this rather long-standing resistance area, it is eventually successful in doing so, creating the breakout buy labeled on the chart as Buy 2.

An interesting point next develops on this chart as the market approaches the intraday high during the 12:30 P.M. time frame. The market is first turned back by this heavy resistance, initially falling back to midrange for the day. This activity also creates a significant Category 3 resistance area at the very intraday high, creating a formidable barrier to further market advances. As discussed in Chapter 7, devoted to support and resistance points, the stronger the resistance, the stronger is the market momentum that will be created when a breakout does occur. In essence, this area offers us two reasons to place a buy stop directly above the resistance point, as a Category 3 resistance point is located at the same spot as the intraday high.

Our buy stop, labeled Buy 3, is filled here when the market is finally able to overcome this long-standing hurdle. The reaction back down from this breakout is long enough to create a third Category 3 resistance area, which is used once again for placement of a buy stop. Buy 4 occurs as the market trades through this area.

Briefly reviewing the activity of this ADI chart, recall that the forecast for a sideways to higher day was issued by the Directional Day Filter only one hour into the session. The chart patterns can only be classified as sideways to higher, as the pullbacks were severe and new highs were made, but only with a significant struggle. Thus the accuracy of our filter is again confirmed.

The Directional Day Filter can be a powerful tool for the trader willing to spend the time necessary to become familiar with its use. As with many such items, the understanding and application of this indicator is as much an art as it is a science. While there are certainly black-and-white days when the prediction for the daily trend is quite clear, there are also multiple indeterminate days. On such days the determination must depend on the experience gained by the trader as he or she has observed the activity of the indicator, possibly using multiple settings for the calculation of the average line and the time to make the trend prediction.

Significant research has shown this indicator to be 75 percent accurate in its daily trend projections. Details of this research are presented in Chapter 13, “Directional Day Filter Breakout System.”

## CHAPTER REVIEW

1. Many simple technical indicators work well simply because many people use them.
2. The Directional Day Filter is useful in enabling the trader to trade in the direction of the dominant trend of the day.
3. The Directional Day Filter can identify up days, down days, and sideways days.
4. The Directional Day Filter is also useful as a support and resistance measuring tool.



# 11

## **ALTERNATE USE OF ONLINE INDICATORS**

### **Identification of Exhausted Corrections within the Major Trend**

Thus far in the book we have discussed in detail the Directional Day Filter, which, with 75 percent plus accuracy, can identify each trading day as uptrending, downtrending, or nontrending. Additionally, we have detailed the problem with the use of oscillator indicators that continually issue sell orders during uptrending days and buy orders during downtrending days. We have also discussed in detail a method of using divergent settings of these same oscillator indicators to improve the accuracy of issued trading signals.

In this chapter I will begin the discussion of the practical use of a unique application of oscillator indicators. This practice involves the use of dual signal oscillators used to identify the exhaustion, or termination, phase of market corrections that occur periodically during the progress of the major trend of the day. This method will be noted to be quite different from the common application of these indicators, which often results in trading signals being issued against the dominant trend. I will combine the Directional Day Filter with the dual setting configuration of

stochastic, Percent R, and RSI to demonstrate the generation of high-probability trades using these two unique approaches. This technique enables accurate entry in the direction of the dominant trend of the day.

Each chart will be displayed detailing the signals from the Directional Day Filter in combination with the dual settings of each of the oscillator indicators. A separate chart is included for each oscillator in combination with the Directional Day Filter. This configuration will allow the comparison of all three combinations against each other.

In most cases the data used to create these examples will be configured as a one-minute chart. In selected instances three- or five-minute charts will be presented when the nature of the data dictates. The effective data compression is printed in the upper left corner of each chart. For example, the notation in the upper left corner of Figure 11.2, later in this chapter, reads "ADI LAST-1 min," meaning that this is a one-minute chart of ADI with the last price of each bar marked as the close of that bar. The notation on Figure 11.11 reads "DISH LAST-3 min," as this is a three-minute chart of Echostar Communication Corp.

In all cases the settings used as inputs for the dual oscillator indicators remain unchanged for all charts presented in this section.

As stated in the Introduction to this book, the entire purpose here is to describe in detail the use of several trading strategies in multiple situations. The material is not presented as a specific trading system. It is rather supplied as a group of tools that both new and experienced traders will find useful either in enhancing their existing trading styles or in the actual construction of entire systems from the ground up.

Therefore, when examining the following material do so with the understanding that these examples are meant to describe multiple applications of several tools under several real market conditions. This section is not meant to describe a hard-and-fast trading system that must be followed to the letter to be successful. It is hoped you will find material here that will be helpful in your trading activities. Examine the remainder of this section carefully, selecting the tools and combinations of strategies that will be most beneficial to your individual trading style.

## TRADING THEORY

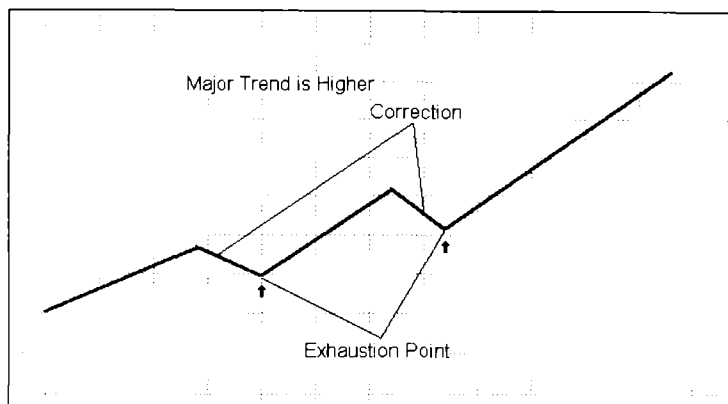
The premise of our basic theory is to take major positions only in the direction of the major trend of the day after it has been revealed by the Directional Day Filter. To accomplish this task we look to identify exhausted corrections from the major trend and take positions after this exhaustion is complete.

The simplified graphic in Figure 11.1 further describes this theory. On the graphic the major trend is obviously higher. Trends rarely progress in a straight line. Frequently, the market will pull back for a short distance for a variety of reasons. The momentary pauses in the trend are often referred to as corrections. Two such corrections are labeled on Figure 11.1. When these corrections reach their terminations they are referred to as being exhausted. Our objective is to enter the market as close as possible to these exhaustion points in order to participate in the major trend of the day. Our strategies will not always be able to time our entry as precisely as described by the upward-pointing arrows in Figure 11.1. Our objective is to identify these prime entry points as closely as possible in order to place our trades with the highest probability of success.

Our first group of charts uses data from Analog Devices Inc. (ADI) to describe entries into an existing downtrend. We will initially examine trading signals issued by the dual stochastic indicator when used in conjunction with the Directional Day Filter (Figure 11.2).

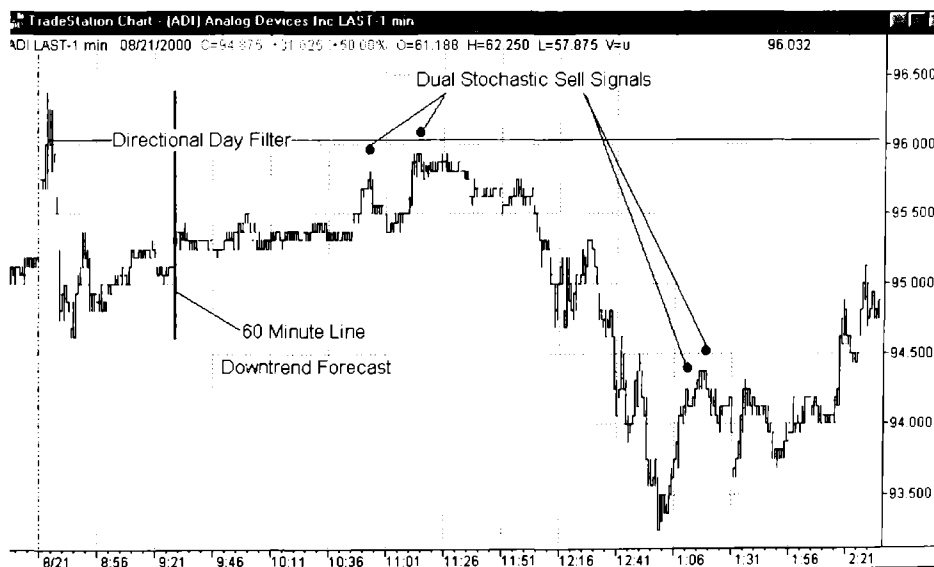
At the 60-minute point of the session note that the majority of the market activity thus far is below the filter line. Additionally, the close of the 60-minute bar is far below the filter line and in the lower portion of the intraday range, forecasting a downtrend for the remainder of the trading session. Therefore, this strategy will look to assume positions only on the short side of the market and, for the purpose in this section, which is only to generate entry signals, ignore any signals generated on the buy side.

The dual stochastic method used here is the exact routine that was described in detail in previous chapters. To review, a slower, 45-period stochastic must first pass above the 70 threshold and remain there while the seven-period, faster stochastic passes above the 90 threshold and turns down on a closing basis to generate the



**Figure 11.1** Trends frequently exhibit corrections along the way. Prime entry points are found at the exhaustion points of these corrections.

Chart created with TradeStation® 2000i by Omega Research, Inc.



**Figure 11.2** Sell signals from dual stochastic during a downtrending day.

Chart created with TradeStation® 2000i by Omega Research, Inc.

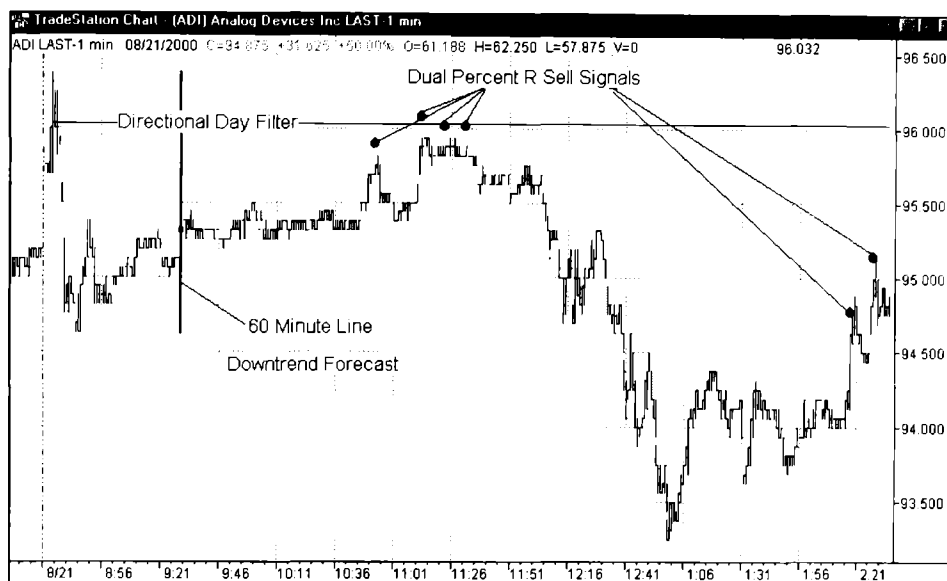
sell signals plotted on the chart. Users are of course encouraged to change these threshold values and period values to create strategies appropriate for their own trading style, individual market, and time frame being traded.

The initial sell signal was issued near the 95.50 area as the market corrected against the sharp market drop that occurred shortly after the market opened. A second selling indication appears a few bars later as the fast stochastic turns higher and then back lower in response to the minor market rally that completes the final serious attempt at a rally for this issue during this trading day. Note that the market also encounters resistance at the Directional Day Filter line. Traders taking either sell signal are soon rewarded with a significant drop in the market.

Additional sell signals are issued later in the day as the market again puts in an attempt at a corrective rally. It is doubtful that these signals could have been used in a profitable manner. When using these indicators on the market and time frame of your choice, situations such as these should be carefully isolated and examined over a significant amount of market data. Close study of these patterns enables the trader to adequately quantify the response, if any, that should follow the appearance of such a signal when it appears again. One may in fact conclude after such examination that it is not prudent to reenter the market after a move of this magnitude in ADI. The same observation on another issue may reveal that entries under the same circumstances are indeed profitable. As mentioned frequently, these tools are designed for the individual trader to enhance or build his or her own trading strategy. Thoroughly researching questionable signals such as these is the first and most important step in the design of such a trading theory.

Figure 11.3 places the dual Percent R signals on the same data.

To once again review, the dual Percent R indicator operates in much the same manner as the dual stochastic tool, with the slower average being above the lower threshold while the faster setting moves above the upper threshold and then turns lower. As before, I am using a 50-bar setting for the slow plot and a 75-bar setting for the faster calculation. When this event is completed, a dot is placed above the bar that generated the final pattern indicating a sell signal. For purposes of simplicity and clarity we are placing



**Figure 11.3** Dual Percent R signals on the identical data used in Figure 11.2. Chart created with TradeStation® 2000i by Omega Research, Inc.

the dots only on these charts that are being used as actual trading examples eliminating the familiar plots on the bottom of the charts. Real-time traders may prefer to observe the actual patterns of each Percent R formation unfold as the values are created. This has the effect of giving the trader a heads-up that a buy or sell signal is about to be issued by the indicator.

Again only sell signals are considered, as we are working with a day with a forecast for a decline in prices. We have here several sell indicators from the dual Percent R in relatively the same area of the chart as where the dual stochastic signals appeared on the first chart of this group. You will soon note that, due to its unique construction, the dual Percent R indicator will issue signals on a more frequent basis than the other two oscillators used in these examples. As a result, you will see that some of the signals from Percent R will appear on the chart a bit ahead of the prime entry point. When you complete your further research you may find that this indicator as used here may end up being a heads-up indicator in its own right. Used in this fashion the dual Percent R indicator may be the first indicator to ap-

pear, acting as a qualifier of sorts for the actual trading signal to be issued at a slightly later time and perhaps at a bit more favorable price level for the trade in question. Signals generated by the dual stochastic and dual RSI indicators are not usually as frequently plotted, but may be found to be a bit more accurate in their trade placement function. Traders may therefore find that the appearance of Percent R signals may be best understood as an indication that conditions are forming that may lead to the placement of a trade. These signals will often be confirmed a few bars later by dual stochastic and/or dual RSI, resulting in a more accurate placement.

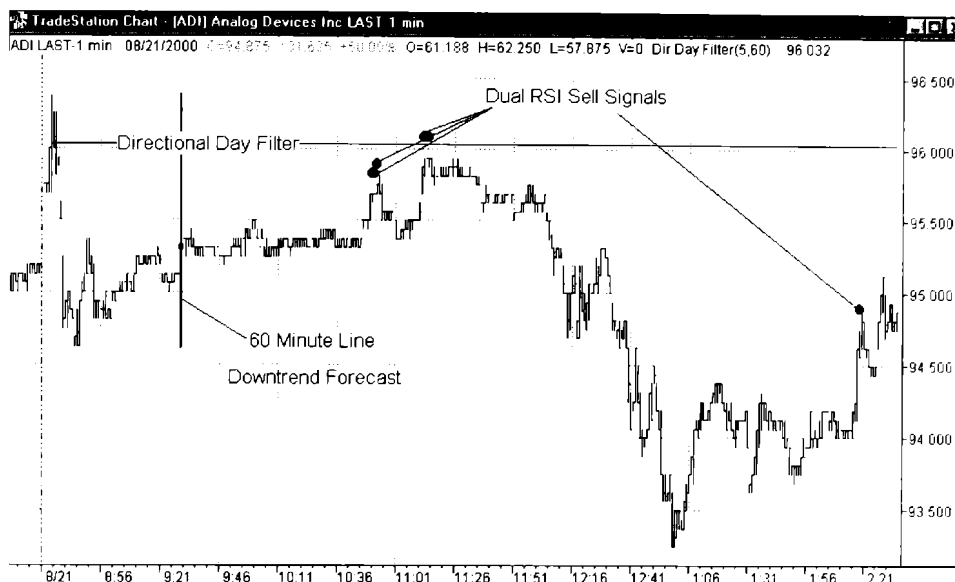
Of interest also on this chart is the fact that there are no further sell signals issued by Percent R until the final stages of the trading session, probably too late to be useful for a day trade with a reasonable expectation of generating a profit.

Since the emphasis here is on the use of multiple trading tools in conjunction with one another, it is useful to point out that there was no heads-up signal from dual Percent R prior to the short signals issued by dual stochastic during the 1:00 to 1:45 P.M. time frame. The lack of this signal from Percent R may well have led the trader to ignore the sell signals issued by dual stochastic at this point. In retrospect, the lack of confirmation of this signal by dual Percent R was of value, as the trades that would have been generated here would have had a rough time producing a favorable result.

The third and final chart in this group, Figure 11.4, details signals from dual RSI during the same trading session.

To review briefly the actions of this indicator, recall that this tool operates in much the same fashion as our two previous examples. The slower RSI average must first be above the lower threshold while the faster average must climb above the higher threshold and turn lower on a closing basis to generate the sell signals represented by the dots on the chart. Again, for clarity the actual tracings of the operative RSI plots have been removed from these charts. These signals are generated using a 5-bar and a 14-bar setting for the fast and slow components, respectively.

Much the same picture unfolds here as dual RSI again issues sell signals in the same area as was indicated by dual stochastic and dual Percent R. Traders experienced in the observation of all three of these oscillators in combination with the Directional Day



**Figure 11.4** Dual RSI signals on the same chart of ADI on August 21, 2000. Chart created with TradeStation® 2000i by Omega Research, Inc.

Filter would definitely have been prompted to action by the confluence of all three signals at the same point on the chart.

It is also interesting to note that these initial signals are being generated as the market approaches the Directional Day Filter line. Recall from previous discussions the situation whereby this line can often act as resistance when the market attempts to recover from previously experienced losses. The appearance of sell signals from all three oscillators at this point of resistance is another of now several suggestions by our set of routines that point strongly to the necessity of placing a sell order at this point.

The third sell signal is issued too close to the end of the day to be significant for our purposes here. Of interest also is the absence of sell signals from dual RSI during the 1:00 to 1:45 P.M. time frame during which sells were issued by dual stochastic on the first chart of this series. It is doubtful that traders experienced in the use of these methods would have seriously considered placing a short trade at this point since signals were issued by only one of our three tools in this area.

Now let's look at the various combinations as they are ap-

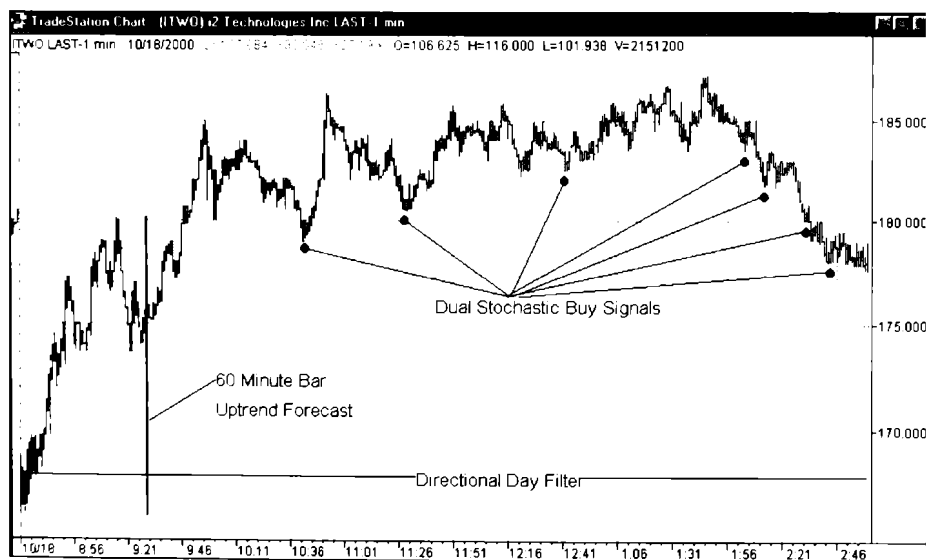


plied to an advancing day in the market for i2 Technologies Inc. (ITWO). As before, we will begin with the dual stochastic signals (Figure 11.5).

We are clearly in an uptrend for the balance of the trading session on this chart, as the majority of the activity resides above the filter line. Also, the close of the 60-minute bar is in a bullish configuration well above the filter line. Also, this close is near the intraday high, indicating that we should expect the formation of new highs the remainder of the day while the established intraday low should remain intact.

The first minor pullback in the market shortly after the formation of the 60-minute bar is not picked up by the dual stochastic indicator. One should recognize, however, that the strategy for trading the breakout of the intraday range after the 60-minute mark as discussed earlier in the book is certainly an applicable method to capture a move such as this one.

Our first buy signal from the dual stochastic indicator comes shortly after the 10:30 A.M. time frame as the first major correction



**Figure 11.5** Dual stochastic identifies exhausted corrections in the uptrend that can be used for long entries.

Chart created with TradeStation® 2000i by Omega Research, Inc.

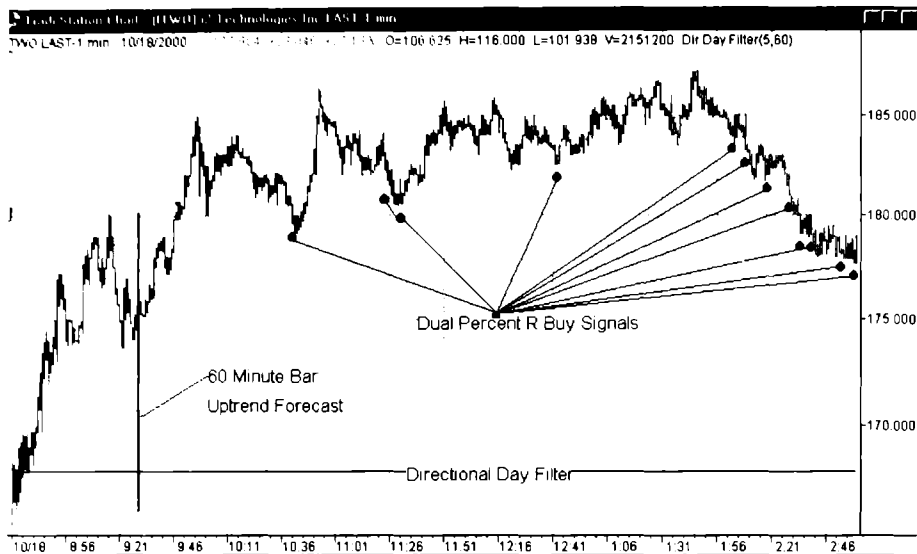
of the downtrend completes its exhaustion phase and the major trend of the day resumes in an upward direction. This upward thrust terminates with the placement of a new intraday high as expected by the Directional Day Filter.

The next correction runs almost parallel to the first when compared in both time and distance. The exhaustion of this phase also results in a buy signal from the dual stochastic indicator. Note also that the indicator waits for a small double bottom formation before issuing a third buy signal that ultimately results in the placement of the daily high on the chart.

The next four signals from this indicator are not as useful for the trader as the first ones to appear. Note from a historical perspective that the market has entered a downtrend to finish the day and our indicator has assumed its familiar habit of issuing buy signals in a down market. However, in real time these signals would have appeared without the perspective we have that allows us essentially to see the decline in the market before it actually happens. Be aware that our purpose is not to show these tools strictly in situations where they have worked perfectly. The real trading world does not work that way. Only by studying charts such as these that show the problems one can encounter in everyday trading will the trader gain an accurate perspective of both the potential and the difficulties that will arise from their use. In the next chapter you will be presented with a method of assessing short-term support and resistance, which will be very helpful when it comes time to sort out situations such as the one at the conclusion of this chart.

Now let's move to the same chart, this time with the signals from the dual Percent R indicator applied as before (Figure 11.6).

Note carefully the minor but important differences in the placement of the buy signals that appear at the exhaustion point of the first three major corrections. Again note that the dual Percent R signals appear slightly before the signals that were generated by dual stochastic. On two occasions these signals appear only one bar prior to the signal issued by dual stochastic, while on the other buy signal a dual Percent R signal appears several bars earlier. In all cases the dual Percent R signal acts once again as warning that another signal from an alternate source is imminent. Once again the terminal portion of the chart causes several buy signals to appear in a down market.



**Figure 11.6** Dual Percent R issues a greater number of buy signals than our other two oscillators.

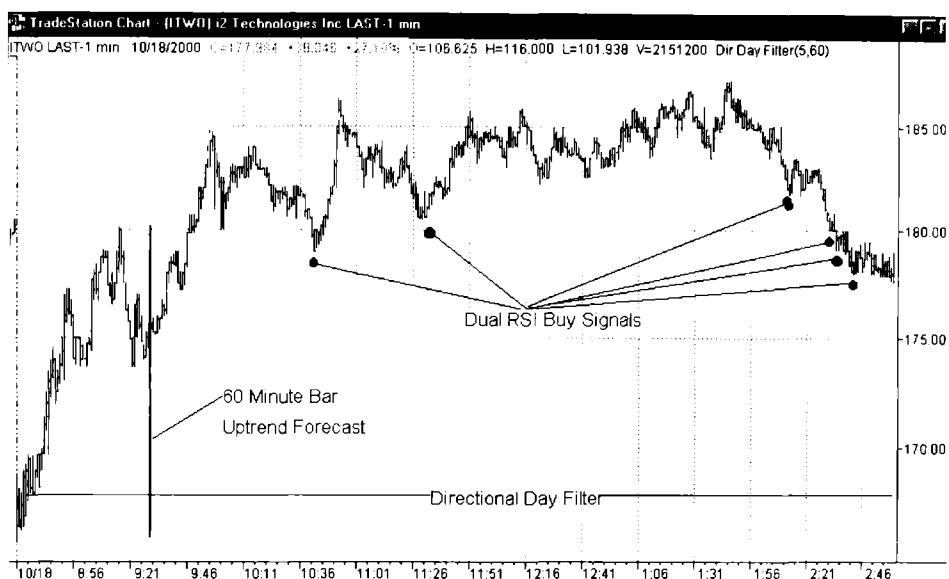
Chart created with TradeStation® 2000i by Omega Research, Inc.

Figure 11.7 applies the dual RSI indicator to the same market. Note that once again there are fewer signals generated by the dual RSI tool when compared to dual stochastic and dual Percent R. It is also possible to state that these signals are more accurately placed, as they have identified the strongest two moves in this market while ignoring the third buying opportunity signaled by the other two routines. This trade, while profitable, still took a bit longer to develop.

The dual RSI is no better at ignoring the false signals that are issued during the latter portion of the trading day than were the others. Again, use of support and resistance that is covered in Chapter 12 will be of considerable value in avoiding the unprofitable entries that could result from using these tools alone in these types of situations.

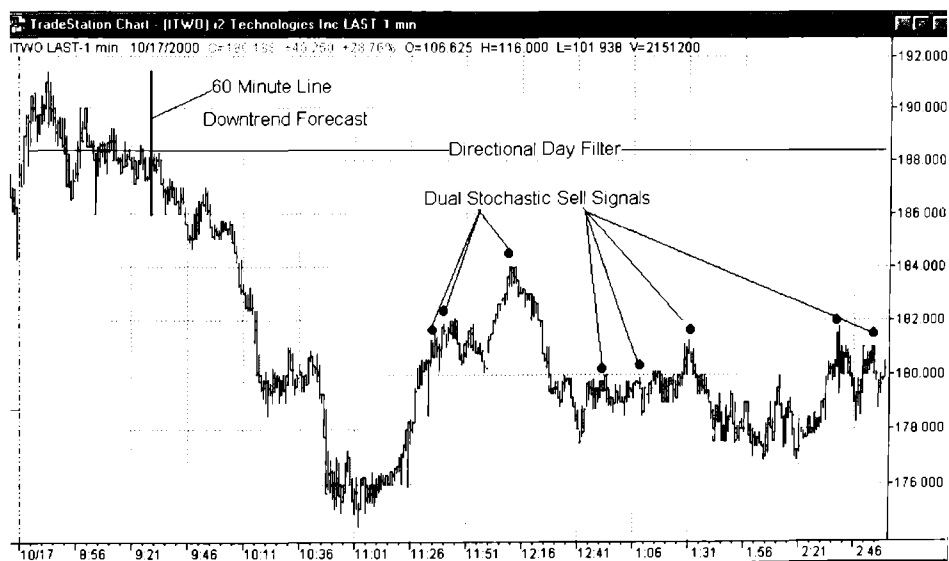
The next chart series also uses data from ITWO, this time working with a down day.

The Directional Day Filter is forecasting a sideways to lower day in Figure 11.8 due to slightly more activity below the line and



**Figure 11.7** Dual RSI signals generated from identical data used for Figures 11.5 and 11.6.

Chart created with TradeStation® 2000i by Omega Research, Inc.



**Figure 11.8** Sell signals are issued as dual stochastic identifies exhausted corrections during the downtrend forecast by the Directional Day Filter.

Chart created with TradeStation® 2000i by Omega Research, Inc.

the close of the 60-minute bar also slightly below the line. The sudden, sharp drop in the market quickly confirms the lower part of the forecast. Also, had one delayed the interpretation of the daily trend for another 30 minutes the prediction would clearly be for a continued market decline.

As was the case when we examined an uptrend for this same stock issue, the initial, sharp market move was quite violent. The minor corrections that did exist were not strong enough to trigger any signals from the oscillator indicators that are designed to signal the exhaustion phase of such corrections. The strategy mentioned earlier that trades the breakout of the intraday range as defined by our 60-minute bar would have again been very successful in capturing what turned out to be the best trend of the entire day. This is an example of how careful study of any individual market can be of benefit to the trader. After the examination of only two days of market activity for ITWO we have already noticed a characteristic early-morning move that in both cases would have been very profitable had the described breakout strategy been employed. It is entirely possible that these observations have only uncovered one of those one- or two-day wonders that do not persist throughout the trading history to the degree necessary for this strategy to be helpful in the long term. On the other hand, if careful study of several months of data from this issue indeed proves that this is not an aberration but instead a repetitive feature of this particular stock, we may have found something worthy of further consideration. It is often tempting for traders to immediately begin implementation of a new strategy such as this one after watching it be so successful twice over a short period of time. Caution is certainly advised here; the possibility definitely exists that this may not be a repeatable feature of this particular market.

The initial sell signals from dual stochastic come as the first major correction nears its first exhaustion point in the \$182 area. This trade may have been profitable depending on the exit strategy or stop loss routine that was employed.

The second sell signal is released just as the exhaustion is completed at the \$184 level. This entry is followed quickly by a sharp down move that has the possibility of a \$5 or \$6 per share profit, again dependent on the choice of an exit strategy or trailing stop routine.

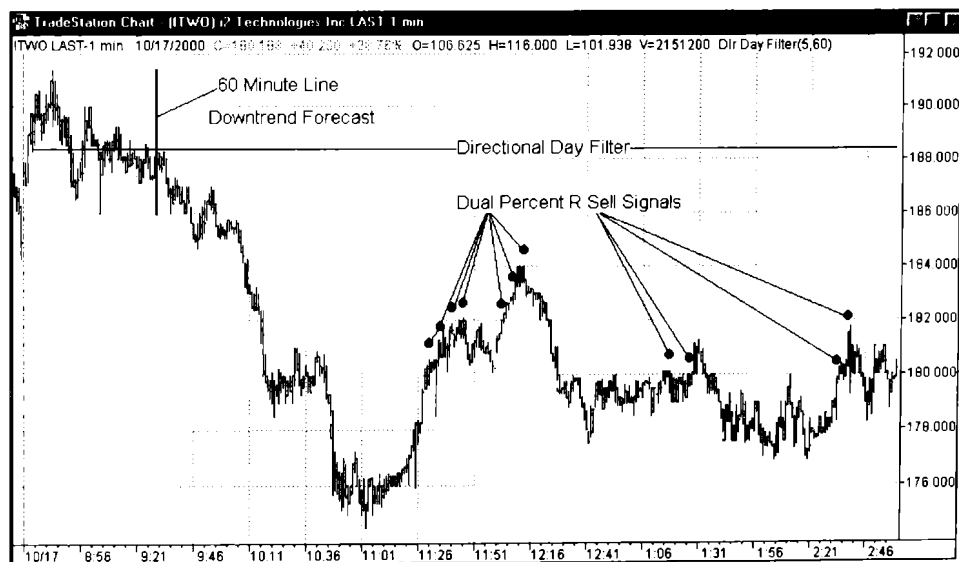
The next three signals are involved near the exhaustion point of the next correction. Once more we see a pattern of the early signals in this market being quickly replaced by signals given at a better price level. Again, this may be a pattern of activity with this indicator on this particular stock issue that may be worth further examination of historical data. This trade could also have been exited for a small profit or at least could have broken even, again dependent on the selection of an exit strategy.

The last two sell signals are presented too late in the trading day to have any major significance for our purposes.

As was the case in previous examples, in Figure 11.9 we find the dual Percent R signals appearing well in advance of the signals issued from the dual stochastic indicator. In all instances on the chart this indicator gave us the usual heads-up warning that a signal from the other oscillators is just around the corner.

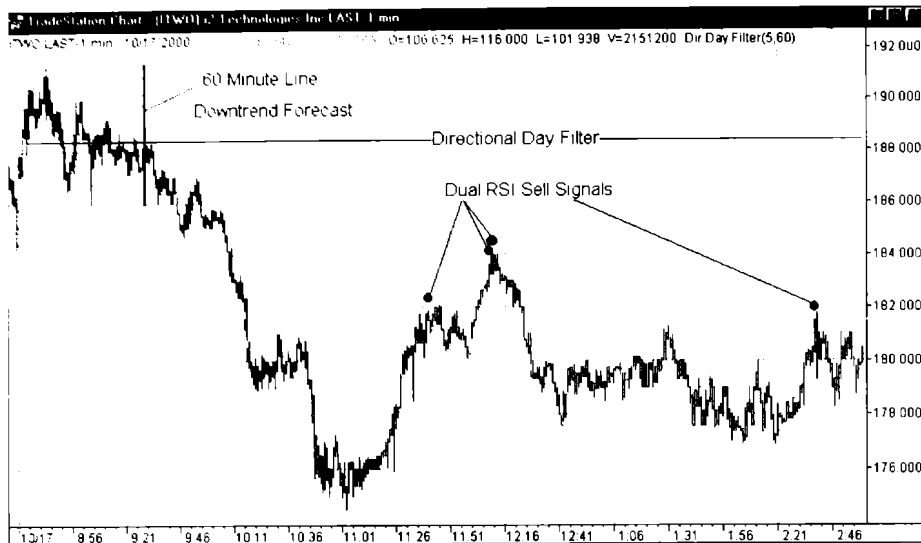
Again the dual RSI signals are definitely fewer in number and seemingly more accurate as you can see in Figure 11.10.

When examining these three charts it is interesting to note that the best reaction trade of the day, the one entered at the



**Figure 11.9** Dual Percent R signals appear well before signals from dual stochastic or dual RSI.

Chart created with TradeStation® 2000i by Omega Research, Inc.



**Figure 11.10** Once again dual RSI is issuing the final, confirmatory indication of an exhausted correction.

Chart created with TradeStation® 2000i by Omega Research, Inc.

high point of the correction that ends at approximately 12:00 noon, is clearly marked by all strategies used here, all on about the same bar. The less attractive entries that came in during the 12:45 to 1:45 P.M. time frame were issued only by dual stochastic and dual Percent R.

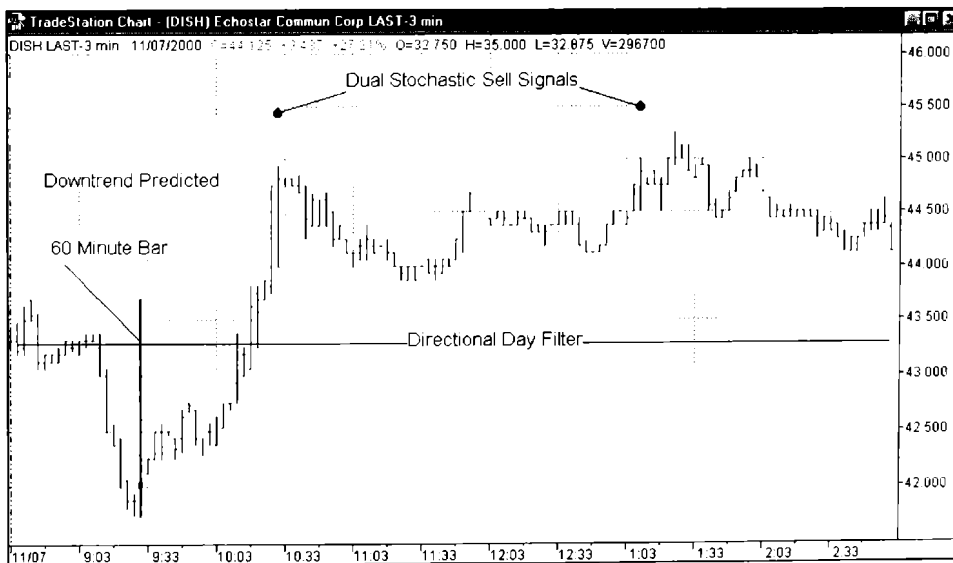
On the basis of these examples the trader is presented with some interesting choices concerning both trade entry and risk management. More conservative traders may wish to bide their time until all indicators have given an appropriate signal for a trade. One would look to dual Percent R to give the first warning that the current correction was beginning to exhibit early signs of trend exhaustion that is likely to lead to a reversal in the actual direction of the market. No action would be taken until the signal was confirmed by both the dual stochastic and dual RSI components of this strategy. This approach would certainly limit the number of trades per day but should confine one's trading activity to the signals most likely to produce a consistent profit.

A bit more risky approach, but one likely to trade more often, would be to use the dual Percent R as the qualifier but then rely on

just one of the two remaining oscillators to confirm the entry. Again, on the basis of these examples, the risk assumed with this approach would be greater with the utilization of the dual stochastic indicator as it seems to throw off a few more trades and enters a bit earlier than dual RSI. One would have to devise an appropriate exit strategy for each approach, realizing that a tighter trailing stop and possibly a smaller profit target may be more appropriate for the higher-risk scenario. A larger profit target or a trailing stop that does not follow as tightly may be more appropriate when one uses all three indicators to confirm entry.

Chapter 12, dealing with market-created support and resistance, will prove to be a valuable tool to enhance both the entry and exit scenarios constructed by the use of this group of oscillator indicators.

In Figure 11.11, a chart of Echostar Communications Corporation (DISH), the Directional Day Filter clearly is predicting a down day for the rest of the session; the majority of the activity is below



**Figure 11.11** Research has shown that the Directional Day Filter is 75 percent accurate. This is one of the other 25 percent. Although the expected downtrend did not develop, our dual oscillators effectively identified exhausted uptrends, providing tradable entry points.

Chart created with TradeStation® 2000i by Omega Research, Inc.



the filter line and the close of the 60-minute bar is well below this point and near the intraday low. We then are expecting the intraday high at this point to be in place for the rest of the session, and further are anticipating the establishment of one or more new lows for the day, right? Looking at the chart you will notice that just the opposite happened as the day developed; the intraday low placed by the 60-minute bar actually turned out to be the daily low, and two new highs were placed on the chart. So, what happened? Misprint in the book? Nope. This is a day when the indicator was just wrong in its prediction. Remember, in discussing in detail the construction and interpretation of this indicator, we have stated that the indicator could be accurate around 75 percent of the time. This is one of the other 25 percent. It does no one any good to point out only the times during which these tools work well. In real-time trading we must be prepared to deal with "the other 25 percent."

One approach on a day such as this is simply not to trade the issue in question when we are certain that one of our usually dependable indicators decides to take a vacation. After all, one does not need to trade every day to have a profitable trading career. Often it is just as important to know when not to trade as to know when to place the high-probability trades we are detailing here. In this case, we are aware that the Directional Day Filter is having an off day when a new high is made on the chart at about 10:15 A.M.

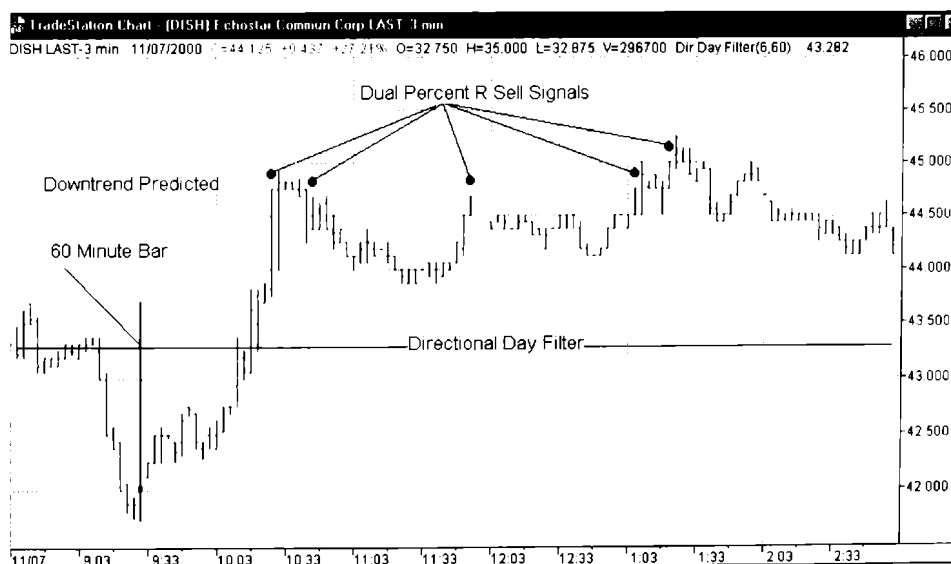
Recall again from previous discussions of the Directional Day Filter that when a down day is expected for the rest of the session, we will then take only trades on the short side of the market. Assuming that we have made the decision to trade this market today regardless of the new high made by the market in direct conflict with our indicator, we will still adhere to the principle that only short trades will be taken. This is not all that unreasonable since there is a good chance that the long side of the market will be less productive just due to the sharp drop early in the day causing our indicator to predict a down day.

With this in mind, we still look to our dual stochastic to signal possible short entries. The first such signal appears shortly after the intraday high that was supposed to be the high of the day got blown away by the rising market. The market proceeds to sell off gradually before rallying once again to issue yet another sell signal just as the market establishes its high for the day.

The dual Percent R indicator again serves us in the role of a qualifier of sorts as the signals from this tool consistently come in a bar or two prior to the signal issued by dual stochastic (See Figure 11.12). The second and third signals that arise from this tool should probably be discarded as they are not confirmed by dual stochastic or, as we will see in the next chart (Figure 11.13), by dual RSI.

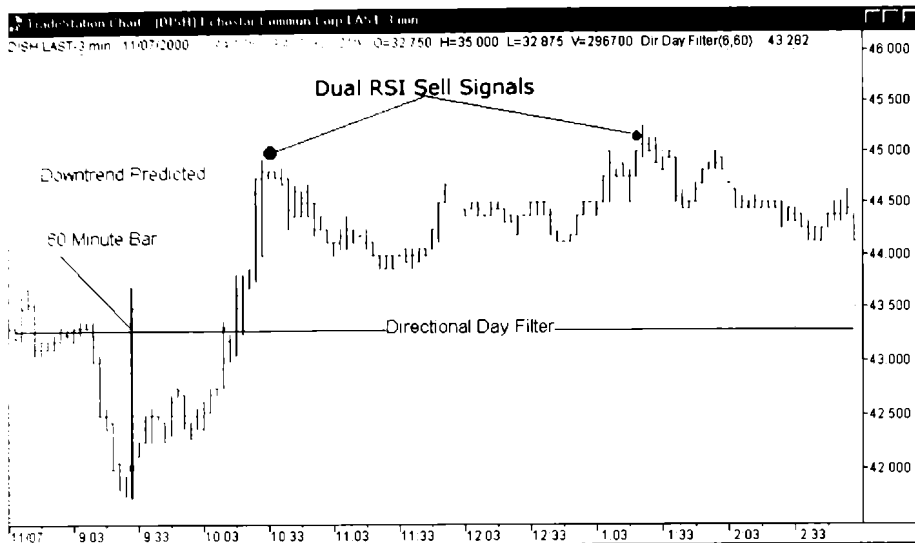
Again the dual RSI indicator holds true to form; it is also able to accurately define prime entry points on this chart. In this case the dual RSI indication of a sell signal came only one bar after dual stochastic, which followed by one bar the same signal given by our qualifying dual Percent R tool. Combining the activity of all three of our indicators has once again proven successful even in the light of an incorrect signal issued by the Directional Day Filter.

We have just shown a day during which the Directional Day Filter was predicting new lows for the market. Instead new highs were placed on the chart. In the strict definition of the filter the indicator was incorrect. However, the application of the filter to the actual trading signals, taking only trades on the short side of the market, was successful in producing two profitable trades. The initial reading



**Figure 11.12** Dual Percent R signals again precede those from the other oscillators.

Chart created with TradeStation® 2000i by Omega Research, Inc.



**Figure 11.13** Dual RSI also identifies our exhausted corrections.

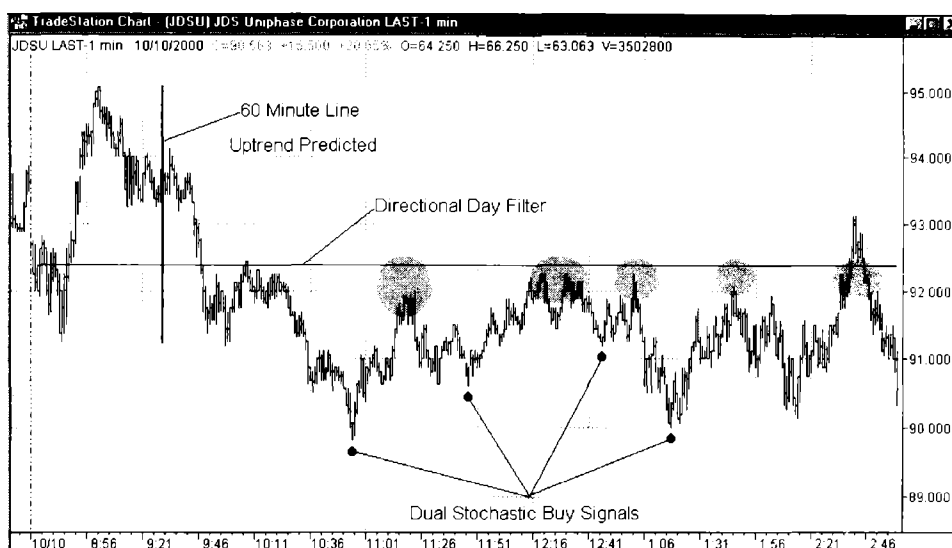
Chart created with TradeStation® 2000i by Omega Research, Inc.

from the indicator was for downside pressure to be present in the market today. This pressure expressed itself in this case not by causing a new low to be formed for the day but rather by limiting the advance of the market, enabling our short trades to be successful.

Figure 11.14 also describes the activity of our dual oscillator indicator arrangement on a downtrending day, this time utilizing data from a chart of JDS Uniphase Corporation (JDSU).

The Directional Day Filter is predicting an uptrend on this chart with most of the activity above the filter line at the 60-minute bar and the close of this bar well above the line as well. Again we notice that the market makes new lows in violation of the prediction by the filter that new highs, not new lows, should be charted sometime during the rest of the day. Again, although the strict interpretation of the indicator has proven incorrect, we can still have a certain amount of faith in the indicator's suggestion that only trades from the long side should be considered on this chart.

We receive an initial buying signal from the dual stochastic configuration just as the market plunges to a new intraday low, which turns out to be the low for the entire day. The market rallies



**Figure 11.14** Even though new lows are made for the day, dual stochastic successfully identifies high-probability buying points. Note the frequency with which the Directional Day Filter line acts as resistance to market advances. Chart created with TradeStation® 2000i by Omega Research, Inc.

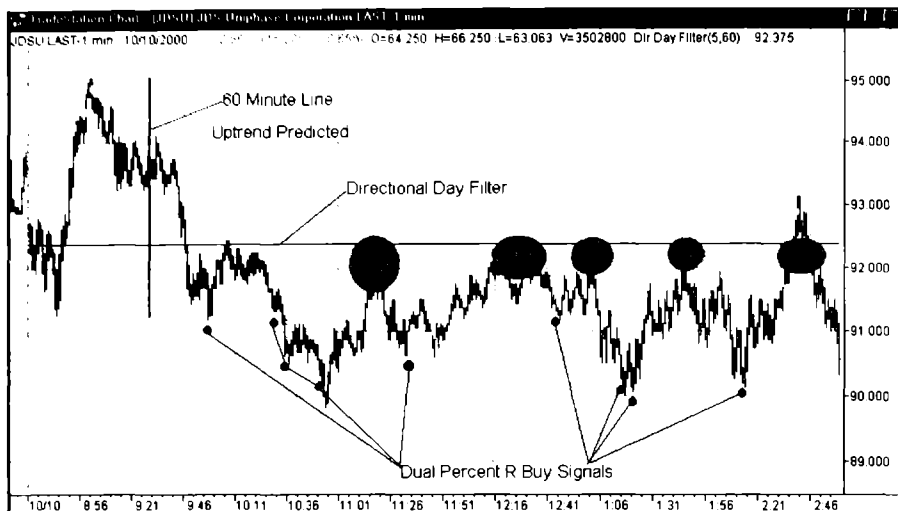
immediately, coming within \$1 per share of the filter line. Three more such entries follow, as marked on the chart.

As we have repeatedly observed, the filter line often serves as significant resistance, especially one such as this where the market has dropped quickly and decisively below the filter line. Note that the market makes fully five attempts to break through this line before actually doing so, even then to be turned lower to finish near the low of the day.

Each of these attempts provides, as discussed before, appropriate points at which profits should be considered. In each case, a gray ellipse above marks an appropriate point for taking profit for each of our four trades.

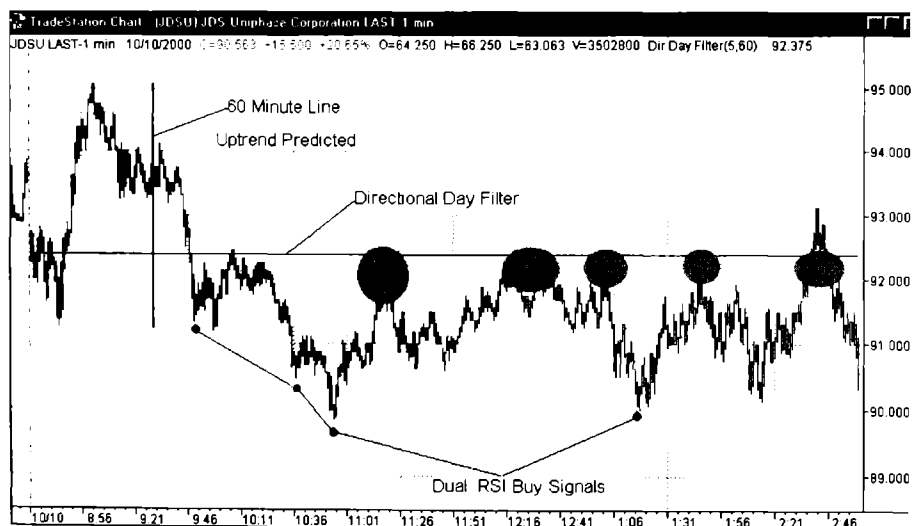
Our signals from dual Percent R again are useful in Figure 11.15 as an adequate indicator that there will soon appear confirmatory signals from either dual stochastic or dual RSI. Both have been shown to be a bit more accurate in the actual timing of both buying and selling signals.

Figure 11.16 applies the dual RSI to our JDSU chart.



**Figure 11.15** Dual Percent R consistently places buy orders prior to other oscillators, giving the trader ample notice of possible confirmatory signals to come.

Chart created with TradeStation® 2000i by Omega Research, Inc.



**Figure 11.16** Once again, fewer, and possibly more accurate, confirmatory signals from dual RSI appear here.

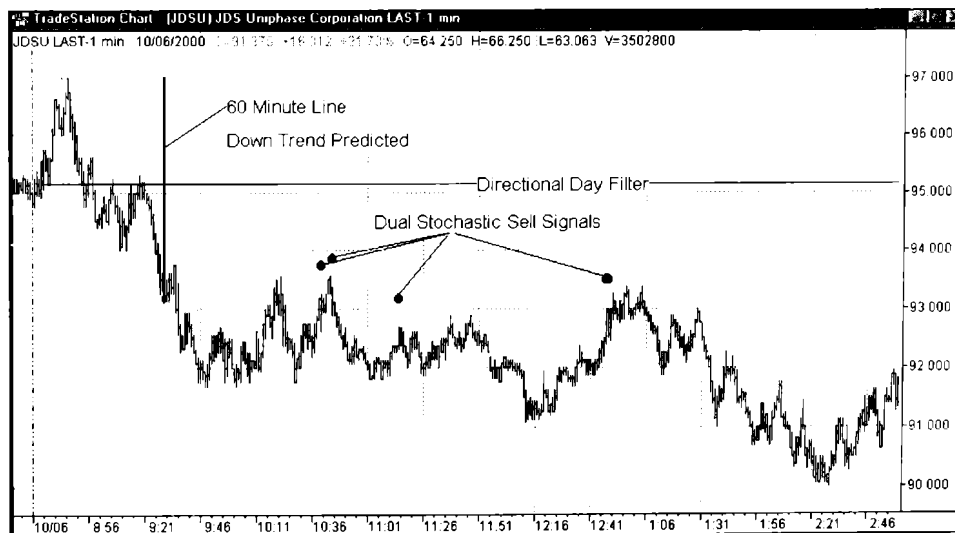
Chart created with TradeStation® 2000i by Omega Research, Inc.

Of considerable interest here is the signal given by the usually quieter dual RSI indicator as the market makes its initial plunge below the filter line. Again, the indicator lives up to its accuracy rating shown on previous charts. The addition of the use of market-defined support and resistance would prove to be an additional filtering tool helpful in the accurate placement of high-probability trades.

Figure 11.17 is another chart using JDSU as the basis for the comparison of signals generated by our filter in combination with the oscillator indicators.

Our Directional Day Filter is predicting a sideways to mostly lower day here. Although the activity above and below the bar is only slightly in favor of the down side, the balance is shifted in favor of the bears as the close of the 60-minute bar is nearly on the intraday low and significantly below the filter line. The sideways portion of the prediction is validated to some degree by the market spending some time in a sideways mode before falling another \$1 per share and then rallying into the close.

Again our alternate strategy that trades the breakout of the early range as defined by the 60-minute portion of the filter



**Figure 11.17** Dual stochastic again identifies exhausted corrections in a downtrending market.

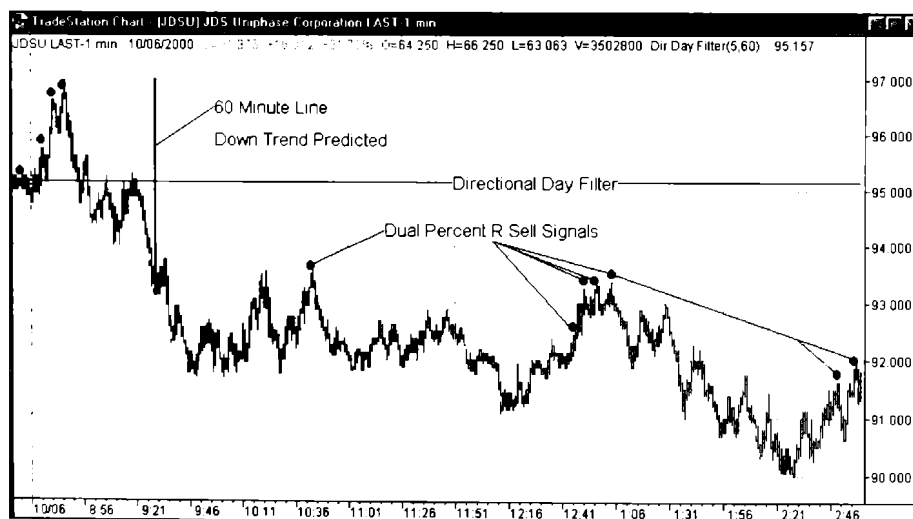
Chart created with TradeStation® 2000i by Omega Research, Inc.

proves its worth, especially on breakouts that occur early in the trading day.

The dual stochastic signals appearing on the chart are once again fairly accurate in their respective sell signals. Of interest on this chart is the apparent strength of the intraday low that was established on the initial hard drop by the market to the \$91.75 area. Repeated attempts of the market to break through this support level are turned back by the aggressive buying uncovered at that level. Fortunately, our dual stochastic indicator is able to position us properly to take advantage of these repeated dives by the market, and, eventually, to be in the right trade when the support finally caves in under all the selling pressure.

Again the dual Percent R formation gives us early warning of upcoming signals from other oscillators, as one can see in Figure 11.18.

There will be traders who will prefer to use the dual Percent R indicator as a stand-alone tool due to its ability to select a greater number of trades and its tendency to be a bit earlier than the other oscillators used for this purpose. However, there is an inherent



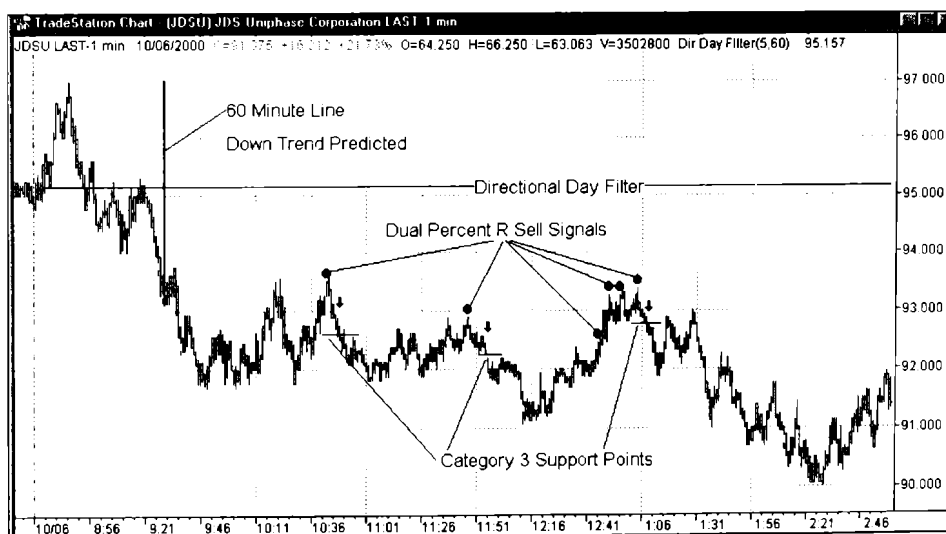
**Figure 11.18** Early warning of impending sell signals is given by dual Percent R.

Chart created with TradeStation® 2000i by Omega Research, Inc.

danger in this strategy: The early entry can occasionally get the trader into a position too early and immediately into a losing position. As I have mentioned several times, the use of the support and resistance formations that are detailed in the following chapter is helpful in keeping traders out of these bad positions. I have included the chart in Figure 11.19 as an example of how these levels can be used as an important filter. More detail follows in the next chapter.

The short horizontal lines in Figure 11.19 mark the positions of Category 3 support levels that are used as an alternative method for trade entry. In this case, sell stops are placed slightly under the support areas as they develop, but only after a sell window is opened by an oscillator, in this case Percent R. When the market trades down through the sell stop our short position is automatically established.

The advantage of this strategy is that you usually enter a position only if the new trend in the market is actually moving in your desired direction. Accuracy of this method is therefore higher than simply entering when the oscillator gives the sell signal. The disadvantage is that you frequently enter at a lower price, therefore



**Figure 11.19** The addition of Category 3 support levels will assist in proper placement of sell signals.

Chart created with TradeStation® 2000i by Omega Research, Inc.

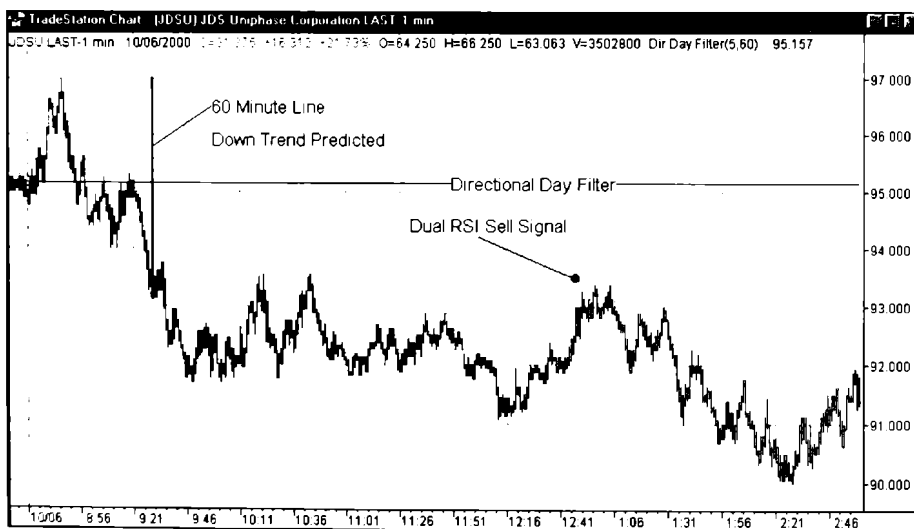


reducing the profit potential for the trade. As with most trading strategies, this becomes a trade-off between accuracy and maximum trade profit. Again, this is a determination and decision that must be made by the individual trader as a function of his or her own trading style and risk-carrying ability.

Figure 11.20 shows only one signal from RSI for this sequence, but at the best point of the day.

## TRADING THE SIDEWAYS DAY

Often one of the greatest challenges for the short-term trader is dealing with the trendless, sideways days that develop on a regular basis. I have heard it frequently expressed that markets trend roughly 25 to 30 percent of the time and remain in the sideways mode the rest of the time. Therefore, a strategy able to offer some degree of success on such days can indeed be a valuable asset to the active intraday trader.



**Figure 11.20** Although dual RSI sees fit in this instance to open only a single sell window, its placement properly positions the trader to take advantage of the last down leg of the day.

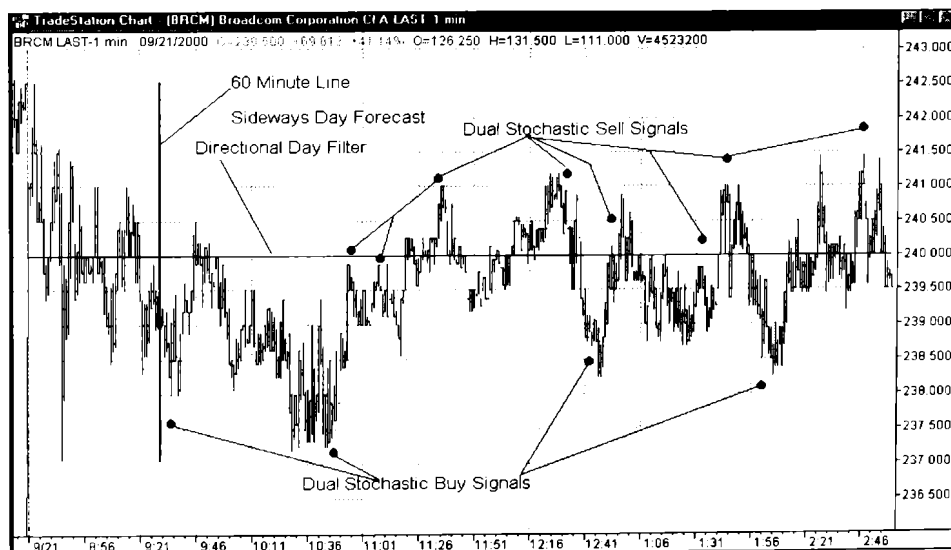
Chart created with TradeStation® 2000i by Omega Research, Inc.

We have demonstrated in this and other sections of this book the ability of the Directional Day Filter to isolate these sideways days early in the session. This makes it practical to apply effective strategies during the initial part of the day that have a high probability of success for the remainder of the session. The following section of charts will deal specifically with strategies that can be effective for trading trendless days using this filter and the dual settings of our oscillator indicators.

For this discussion we will first concentrate on a one-minute chart of Broadcom Corporation (BRCM) (Figure 11.21). Note that the trading activity up to the familiar 60-minute bar has been roughly equal on both sides of our filter line. The close of the 60-minute bar is a fair distance below the filter line, thus giving the day a bit of a downward bias. However, the prediction for this trading day, taken only one hour into the session, is for a sideways, trendless affair to persist throughout the trading session.

With this in mind, the trader is equally confident in taking positions from both a long and a short perspective.

On this initial chart we are showing both buy and sell signals



**Figure 11.21** Multiple buy and sell windows as indicated by dual stochastic are illustrated on a sideways day in BRCM.

Chart created with TradeStation® 2000i by Omega Research, Inc.

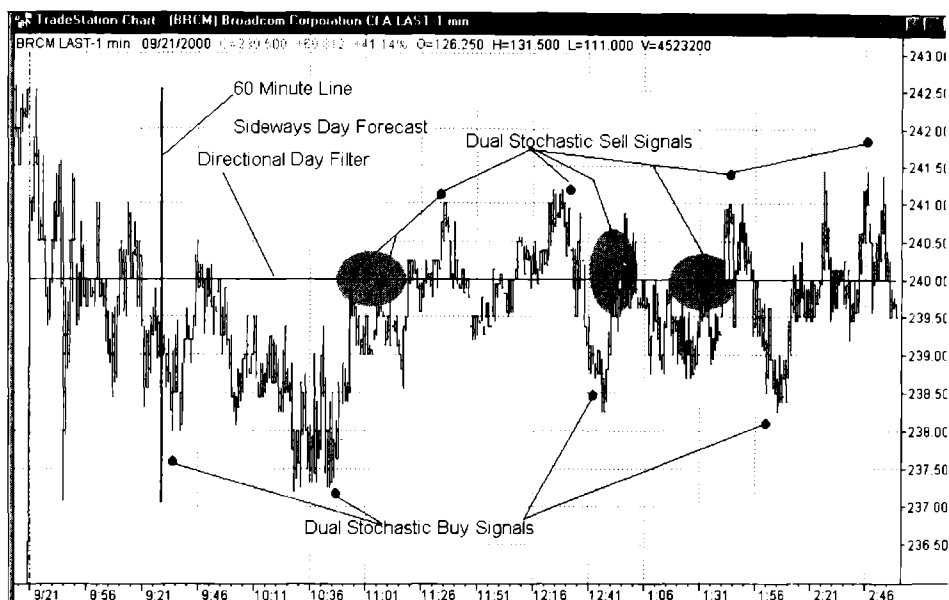
as generated by the dual stochastic indicator. The indicator on this chart is using the same settings as were used on all other charts in this section.

The buy signals that appear near the lows of each major market swing are fairly well placed by this indicator setting, allowing entries without a significant amount of price movement against the position. On such sideways days it is common to have a considerable amount of fluctuation around the filter line. Also, recall from previous commentaries that this line frequently can act as support or resistance for intraday price moves. Since we are fairly certain that the market will visit this line frequently, the level represented by the filter line can be effectively used as an exit point for trades taken from both the long and the short sides. Taking profit at this point, while possibly limiting the potential for a trade, is a more conservative exit. The market can easily turn at this point, moving against the trade and possibly turning an open profit into a losing situation.

For many of the same reasons it is often not profitable to take a short position below the filter line or take a long position above this point. As an example, there are three short trades marked on Figure 11.22 that are taken below the line and another taken just as the market is flirting with this level. It would have been a significant challenge to capture a reasonable profit from any of these trades. It makes a lot more sense to take trades on a sideways day that are a reasonable distance from the filter line, as it is quite likely that the market will once again find itself in the vicinity of this line.

Again note in Figure 11.23 that the dual Percent R indicator gives a few more trade entries than our other tools. The same strategy of using this oscillator as a lead-in type tool also applies well on sideways days. Comparing Figures 11.22 and 11.23 will again reveal that there is an advantage to the utilization of more than one oscillator to pinpoint entries. This is especially true on the latter chart when examining the short entries between 12:45 and 2:00 P.M.; the Percent R indicator allows trades to be entered at a higher level here than the dual stochastic tool indicated on the previous chart.

In Figure 11.24 we see that once again the dual RSI indicator is more selective in its buying and selling recommendations than



**Figure 11.22** Often on a sideways day the Directional Day Filter line can provide a point at which profits may be accepted. Several such areas are highlighted here.

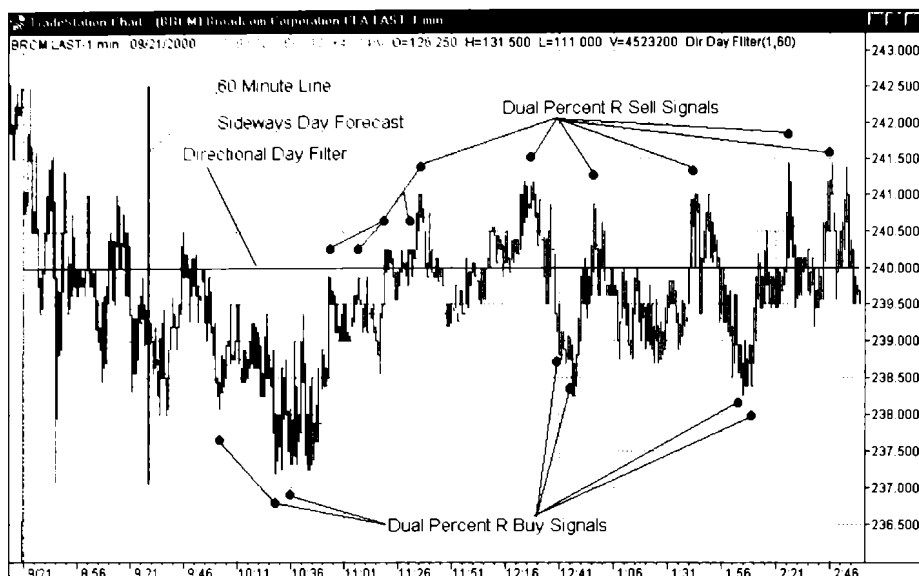
Chart created with TradeStation® 2000i by Omega Research, Inc.

either the dual Percent R or the dual stochastic oscillator. Although a few previously good trades were not marked on this chart, the overall accuracy of RSI is higher on this series.

On this chart the prices were contained within the range of the 60-minute bar for the remainder of the trading session. This is not always the case for a nontrending day. Keep in mind that our definition of a sideways day is one during which both new highs and new lows are made after the 60-minute bar. The next chart (Figure 11.25) illustrates such a day for General Electric (GE).

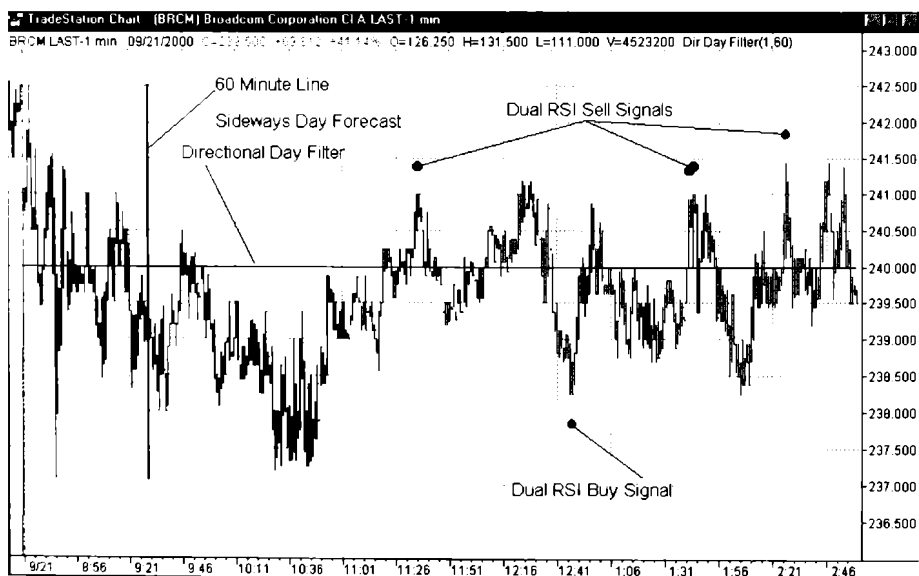
Contrary to popular belief, it is not necessary to concentrate only on high-priced, wide-ranging, volatile stocks to be a successful day trader. One of the most successful traders I know day trades only stocks such as General Electric, Citicorp, and General Motors, trading large blocks of stock for as little as  $\frac{1}{8}$  or  $\frac{1}{4}$  point per trade.

This five-minute GE chart is clearly in a nontrending mode after 60 minutes; the trading activity is almost equally represented above and below the filter line, and the close of the 60-minute bar



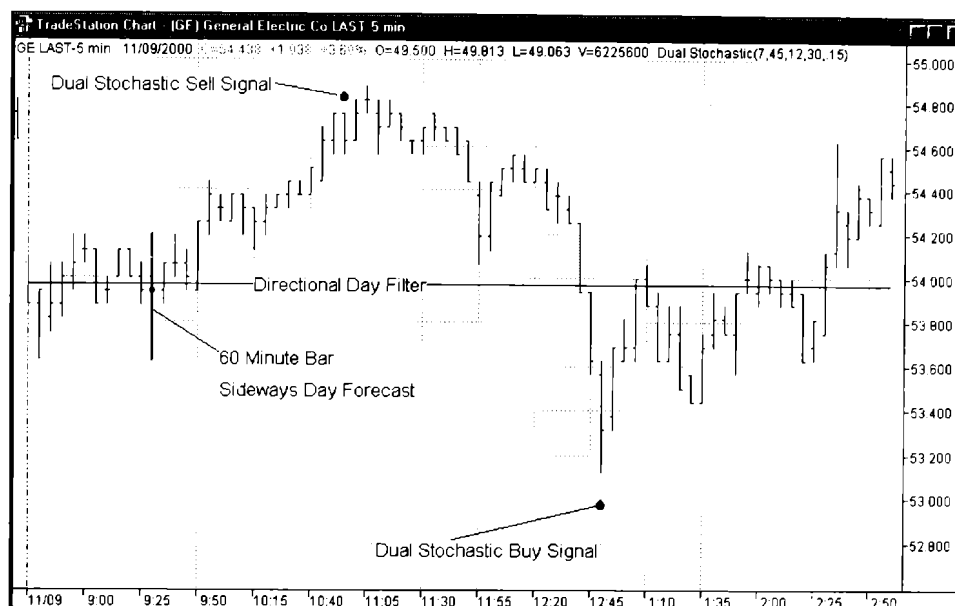
**Figure 11.23** Dual Percent R is also useful as a heads-up tool when trading sideways days.

Chart created with TradeStation® 2000i by Omega Research, Inc.



**Figure 11.24** The usual higher degree of selectivity of the dual RSI is again apparent as significantly fewer trading windows are opened.

Chart created with TradeStation® 2000i by Omega Research, Inc.

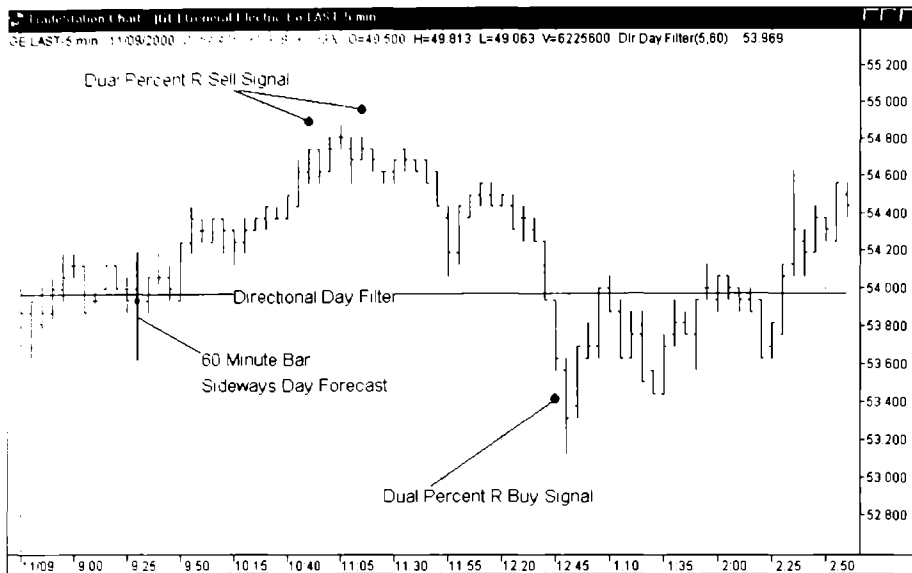


**Figure 11.25** Two signals are issued by dual stochastic during a sideways day in a relatively quiet stock.

Chart created with TradeStation® 2000i by Omega Research, Inc.

is in the center of the intraday range and very close to the filter line. Both sides of the market can be traded with this forecast early in the day.

Note the accuracy of the signals given by the dual stochastic indicator on the chart. Once again observe the behavior of the market when the filter line is approached from both above and below. In some instances the market definitely was turned by this line, while in other situations on the same chart the line was penetrated with ease. Contrast this observation to the frequently noted instances when, in the case of an upward-trending day, the market was seen to find support regularly on this line, or on a down day when resistance was uncovered at this point. Since the behavior around this line is inconsistent on sideways days, the conservative approach here is to consider taking profits at the filter line, entering only on indicated reversals at the extremes of short-term price moves. Using market activity around this line as an entry routine is not likely to be productive.



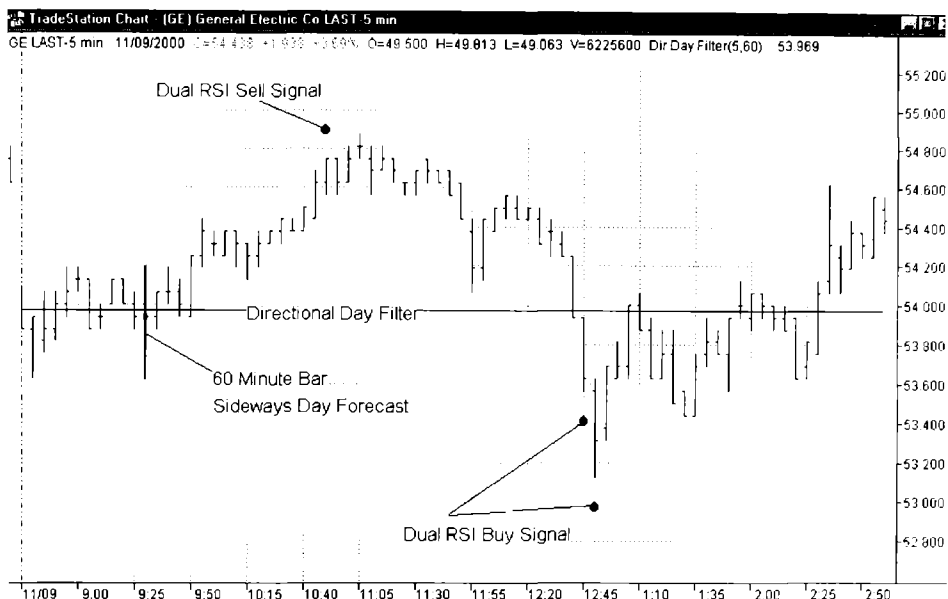
**Figure 11.26** Dual Percent R signals again precede those of other oscillators. Make particular note of the market activity around the Directional Day Filter line.

Chart created with TradeStation® 2000i by Omega Research, Inc.

Shown in Figure 11.26 are the dual Percent R signals generated for the same price chart. Note that on this sideways day the range has expanded considerably beyond the range of the 60-minute bar. However, the market puts in both new highs and new lows for the session, thereby fulfilling our definition of a sideways day.

Figure 11.27 displays the buy and sell signals from the dual RSI indicator on the same day. Note the proximity of the buy and sell signals generated by the three separate oscillator combinations by comparing Figures 11.25, 11.26, and 11.27. These combinations again reinforce the wisdom of utilizing all three approaches when generating signals using this strategy.

Again the dual RSI indicator confirms previous entry signals, showing the reliability of using all three oscillators in conjunction with each other to generate the highest-probability trades.



**Figure 11.27** Note that on Figures 11.25, 11.26, and here on Figure 11.27 all three dual oscillator combinations have detected exhausted market corrections at approximately the same points on the charts. When three separate, mathematically dissimilar routines agree, there is a high likelihood that the signal so generated will result in a trade with a high probability of being successful.

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## CHAPTER REVIEW

1. Dual Percent R will issue relatively more signals and can be used as an indication that a trade set up is about to be completed.
2. Dual RSI will issue significantly fewer signals, although with higher accuracy.
3. Dual stochastic will issue signals on a more intermediate frequency with acceptable accuracy.
4. The most accurate trade entries are generated when all three dual oscillators agree.
5. The Directional Day Filter can be an effective tool to increase the accuracy of signals generated by dual settings of oscillator indicators.



# **12**

## **PUTTING IT ALL TOGETHER**

### **Using Common Oscillators, Support, Resistance, and the Directional Day Filter to Achieve High-Accuracy Trades**

#### **THE FOUR-STEP PROCESS**

So far we have outlined and explained a number of methods by which many of the available online indicators can be used to create an effective trading strategy. We can now reduce these methods to a concise, structured four-step process that leads to the placement of high-probability trades.

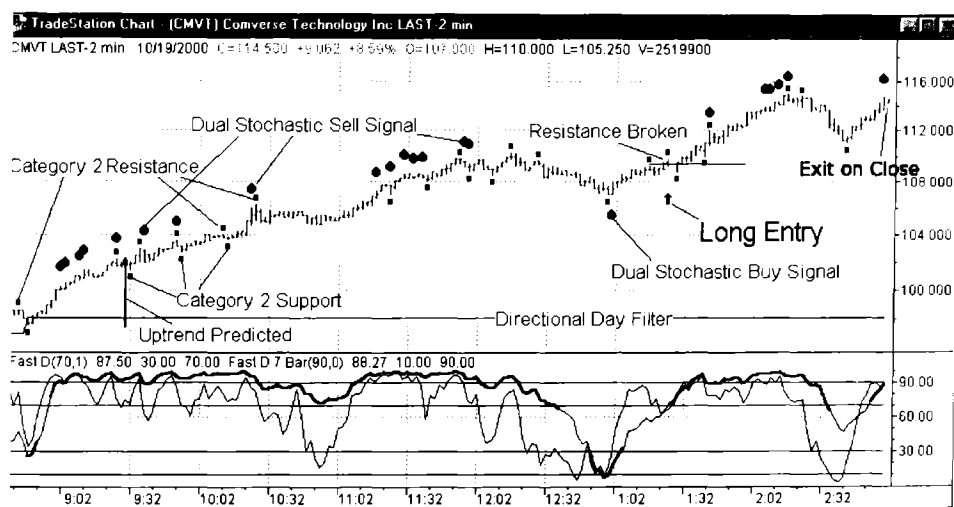
Our four steps are:

1. Determine the major trend of the day using the Directional Day Filter.
2. Determine the minor trend of the day using our selective interpretation of available online indicators.
3. Define an exact entry point using Category 1, 2, or 3 support and resistance levels.
4. Determine an exit strategy using these same support and resistance levels and/or selected interpretations of our list of on-line oscillator-type indicators.

Now let's examine a number of charts, many of which were used earlier, to illustrate the process as it applies to several different trading situations.

Many examples will be offered in this section covering the application of the outlined four-step process in extreme detail. Although the detail provided here may seem overly repetitive at times, readers are encouraged to examine each example in detail, as each will examine individual market scenarios that will be regularly encountered in everyday trading. Only by careful examination of each of these examples will the trader gain a full understanding of the application of this method across a wide variety of trading situations.

The two-minute chart of Comverse Technology Inc. (CMVT) shown in Figure 12.1 has been used on several occasions previously to demonstrate the activity of oscillator indicators in an uptrend and to show how support and resistance can be used to enter a trade with a high probability of success. In this instance I will describe the use of the four-step method to complete a trade. Figure 12.1 will serve as the main point of overall reference for this discussion. Portions of this chart will be reproduced in subsequent figures to allow more thorough discussion of the signals that are generated by our indicator combinations.

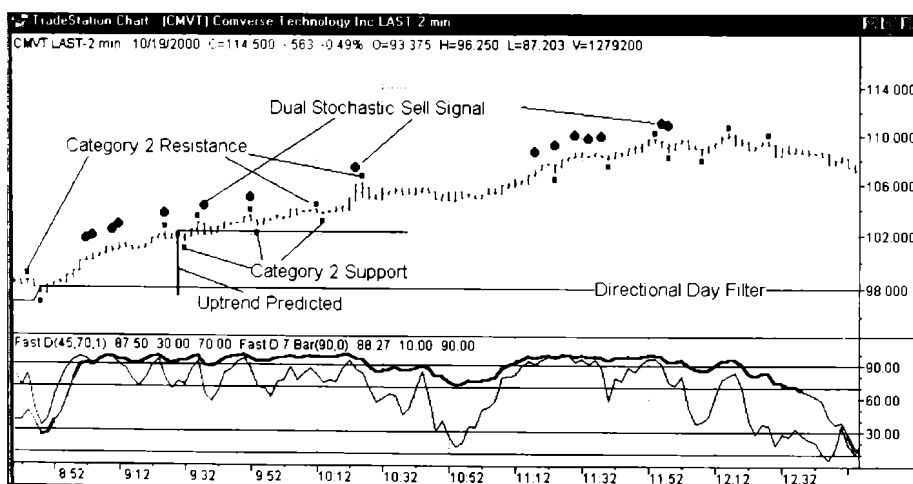


**Figure 12.1** The Directional Day Filter, dual stochastic, and Category 3 resistance combine to generate a high-probability trade.

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First, we can define the dominant trend of the day as higher after one hour of trading has passed. Note the position of the Directional Day Filter in Figure 12.2. Note that it meets our outlined criteria for an uptrending day: (1) The majority of the activity of the market is found above the filter line one hour into the trading day, and (2) the close of the bar that marks the critical one-hour time frame is found at the very high end of the daily range at the one-hour mark. Thus, having determined that the trend for the remainder of the day has a high probability of being up, we will enter only long trades that are in the direction of the dominant trend.

Also on this expanded chart you are able to observe more closely the placement of the several dual stochastic sell signals that persistently arise as the market continues its upward climb. As mentioned in previous chapters, this feature of the oscillator indicator is the one that causes problems for many traders as they persistently are prompted to sell into these rising markets. This chart again provides evidence of why this occurs. As you can see in the lower graphs, the slow oscillator plots ride almost constantly above the overbought threshold areas, making it very easy for the faster average to turn down slightly and issue a sell signal. These are obviously false signals—the market continues to rally.



**Figure 12.2** The Directional Day Filter prevents entry into short positions early in the day.

Chart created with TradeStation® 2000i by Omega Research, Inc.

By using our Directional Day Filter and realizing very soon in the trading session that the trend for the rest of the day has a high probability of being upward, we are therefore able to ignore these signals, giving us a much higher chance of success.

Also detailed on this expanded chart are several Category 2 support levels that are marked by the small black squares that you see under several of the price bars. Although these points are used mainly for short entries into a down market, there is good reason to have an understanding of their placement and use in an upward-trending market such as this one.

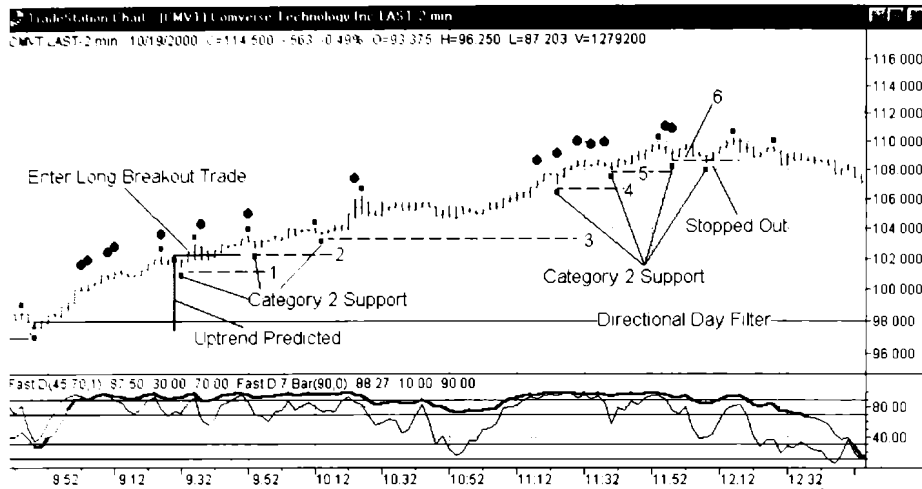
First of all, let's assume that we either have chosen not to use the Directional Day Filter, are unsure of its interpretation, or are incorrect in the reading of the signals from the indicator. In any of these instances we could be looking for sell signals in this market. Also, there are traders who are absolutely certain that this market is going to top out on the next bar and are itching to enter on the short side. If traders are vigorously looking for a sell signal in this market and at the same time are convinced that support and resistance are an important part of any trading strategy, they will be looking to enter the market on sell stops placed slightly below each support point as it is formed.

Notice how the support points are formed here, each slightly higher than the previous point. If our determined short seller was placing his or her sell stops properly, the stops would have been moved higher several times, each time without a market fill as this market plainly refuses to challenge or break the support that it itself has created. The trader is never positioned on the short side under this scenario.

Again, it is as important to know when not to trade as to know when to trade. In this instance we have detailed two reasons not to sell into this market, thus keeping several trades out of the loss column. Our Directional Day Filter and prudent use of simple support and resistance formations has kept us out of trouble for the entire upward move.

By now you must be thinking, "If we are so sure of an uptrend, how could we have participated in this move using our trading tool package?" Figure 12.3 details the use of the 60-minute bar breakout strategy, which can be used in conjunction with the indications from the Directional Day Filter.

As discussed previously, this strategy is used to capture the initial move of the day that occurs as the market breaks out of the range as defined by the 60-minute bar. This method is usually most successful



**Figure 12.3** Trading the breakout of the early range as defined by the Directional Day Filter provides a reliable method for entry on the long side during a day when an uptrend is expected to continue. Category 2 support provides for trailing stop protection, which eventually causes the trade to be exited at a profit.

Chart created with TradeStation® 2000i by Omega Research, Inc.

when the close of the 60-minute bar is within 15 to 20 percent of the intraday high or low. The entry is very basic—it is accomplished by placing buy stops slightly above the intraday high or sell stops slightly below the intraday low. This system will automatically enter the trader into the market in the direction of the breakout of the 60-minute range.

In this case we will consider only the breakout of the intraday high, because the trend of the day has been identified as being higher for the remainder of the session. The buy stop placed just above the intraday range is filled just two bars later as the market trades through our stop.

As with the trades generated in the direction of the major trend by our oscillator indicators, we must now immediately move to step four to protect our position with an appropriately placed trailing stop. Our initial protective stop will rest slightly below the Category 2 support point, which was just as our position is being established. Twelve bars later we are able to move our stop to slightly above breakeven, as we now have a second, higher point supporting the market at this time. This stop level is marked by the dashed line labeled 2. The market now

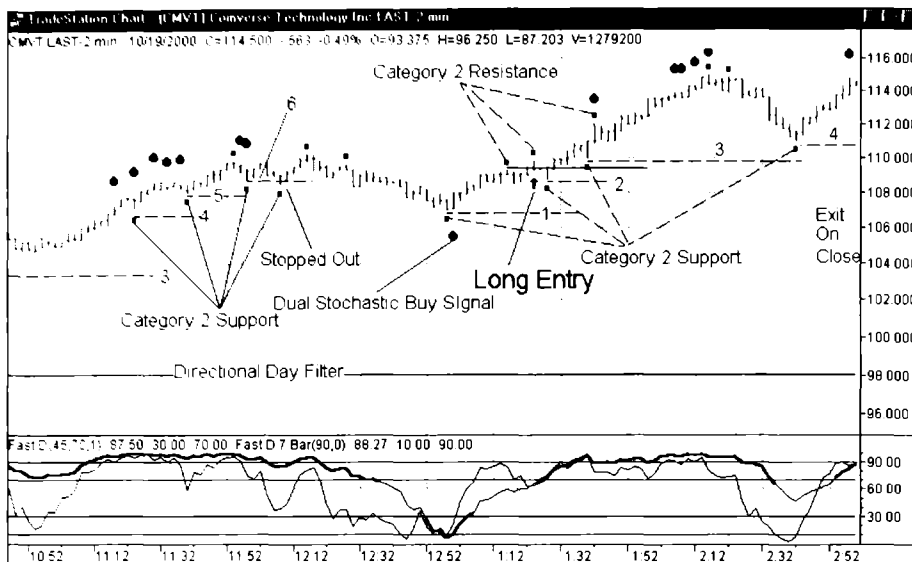
enters a sideways, resting mood, giving us little technical direction until the next support level is established at the dashed line marked 3. As the market temporarily tops out to begin a corrective phase we are presented with support points 4, 5, and 6 in a comparatively short time. Raising the stop level as each point becomes available, we are eventually stopped out of the trade as marked on the chart.

Since we are interested in trading from only the long side on this day, we regard the many sell signals issued as the market rises only with a passing interest, understanding the propensity of our oscillator indicators to give unreliable trading signals on a day during which a rally is expected to continue. We instead are examining all our trading tools for evidence of a downward correction in our progressing uptrend that will provide us another high-probability entry on the long side.

Our moment arrives during the noon hour as the market pulls back enough to open a buy window using the dual stochastic indicator (Figure 12.4). We then look for overhead resistance points where the market will define an accurate entry point. At this time, even though we are confident that the market is in an uptrend for the day and we feel we have just witnessed the exhaustion of a correction in the uptrend, we cannot be satisfied that the prime time has arrived for entry into the long side. There is yet one more criterion that must be satisfied before we are willing to risk our trading capital on an entry into the market.

As you will recall from our discussion of the construction of support and resistance levels, the market itself is responsible for the calculation of these points. Market activity is the force that creates the bars that in turn create the chart formations that result in the definition of support and resistance points. Thus, the remaining criteria to be satisfied for our entry into the trade becomes the ability of the market to overcome the resistance it has itself created. When the market is able to accomplish this feat, then we will be convinced that the renewed uptrend, in this case, is for real. To assure that we don't miss the boat, we place our buy stop slightly above defined resistance. When the market completes its final task of breaking above resistance that it has just formed by its own action, we are automatically entered into our long position as our buy stop is activated.

These events are carried out in our present example as a buy stop is placed at the initial Category 2 resistance area, which was formed a few minutes after the buy window was opened by the dual stochastic



**Figure 12.4** Although we have established that an uptrend for the day is in place and an exhausted correction has been identified, we will wait for violation of overhead resistance before initiating a long position.

Chart created with TradeStation® 2000i by Omega Research, Inc.

buy signal. Our new long position is filled as the market trades through our stop, as indicated on the chart.

We can now progress to step four of the process. Now that we are in a long trade we must make a decision concerning a high-probability exit for the trade. In this case we are fortunate in that the uptrend continues and we are able to exit at the end of the day with a profitable result. However, along the way we must be concerned with first defining an acceptable risk for the trade, and then, as things fortunately progress in our favor, shoring up our position regularly, locking in progressive reductions in risk and then additional amounts of profit.

Once again we turn to the concept I have emphasized regularly as the most important aspect of trading—short-term support and resistance.

Note on this chart that as the market rises there appear on a regular basis new, higher, support points under the market. These are excellent points that the trader may use to protect first the trading account, and then, later in the trade, profit.

The same concept, which was discussed earlier concerning trade entry, is equally valid for this application of support and resistance points. Again, the market itself is responsible for the creation of support and resistance. As the market rallies, regular attempts to correct or reverse the trend fail, creating support points in the process. As we know, should the market be successful in breaking one of these levels, we could experience a significant break in the market. It is therefore prudent to protect one's current position with the placement of appropriate sell stops slightly under these support points. Should the market break one of these points we will automatically be exited from the trade, because our stop order is activated when the market trades at our stop price.

The initial stop for our trade is placed at the dashed line labeled 1. This level is determined by the Category 2 support point that was placed at approximately the same time as the plotting of the dual stochastic buy signal.

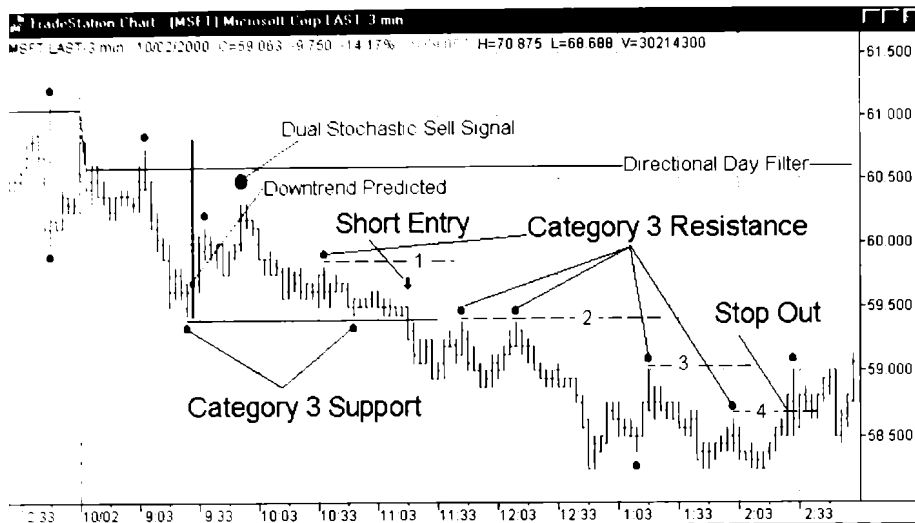
In this particular trade, three Category 2 support points appear after the trade is entered, labeled 2, 3, and 4. Our trailing stop strategy moves our exit point up to each new level as these points appear on the chart. As each is formed higher than the previous point, there is no opportunity for the market to stop us out of the trade. Since we are not stopped out by our trailing stop, we simply exit the market at the end of the day. Later in this chapter you will find additional examples demonstrating this use of support and resistance for the placement of trailing stops.

We will now use a three-minute chart of Microsoft (Figure 12.5) for the next trading example, this time describing the steps as applied on a down day in the market. You may recognize this chart from previous uses in this book.

The first step, as always, is to determine the dominant trend for the day. Note that the majority of the activity one hour into the day is nearly entirely below the Directional Day Filter plot. Additionally, the close of the 60-minute bar is only slightly above the low of the day at this point. Therefore both criteria solidly point to a downtrend for the remainder of the session.

The next step is the determination of the minor trend. We are looking for a correction of the main downtrend as an opportunity to enter on the short side of the market. As discussed earlier, any of the oscillator indicators covered previously can be used for this purpose, preferably in their dual setting mode. Ideally, the trader will be monitoring the sto-





**Figure 12.5** A short trade is generated by the four-step method. On two occasions, fading support or resistance when placing stops is critical to the completion of a profitable trade.

Chart created with TradeStation® 2000i by Omega Research, Inc.

chastic, Percent R, and RSI indicators in combination with each other as he or she attempts to identify the prime exhaustion point of any corrections that occur. For the purposes of clarity on these charts we are only showing the activity of one oscillator combination to identify this exhaustion phase. Traders are encouraged to examine each oscillator or combinations of oscillator indicators on varying time frames of their favorite security or commodity contract. Only in this manner will the optimal entries be obvious when they appear in real-time trading.

The dual stochastic combination in use on this chart identifies the exhaustion point on the correction taking place during the 9:45 to 10:00 A.M. time frame. This sell signal is labeled as a slightly larger black dot on the chart. Appearing as it does on this chart, this indicator is especially significant when one examines the remainder of the chart and notices that this is the only sell window opened by dual stochastic during the entire session. Although the possibility certainly exists that our other oscillator combinations could have issued additional selling opportunities, the fact remains that if one had waited for a second chance at a short position on this day an excellent selling opportunity would have been lost. The market exhibited significant weakness for

the rest of the session. That weakness was strong enough that any feeble corrections were unable to trigger another sell window.

With the sell window now opened as a function of both the Directional Day Filter and the dual stochastic sell signal, we are now free to enter step three, the identification of a useful point at which to set our trap for a high-probability entry. Fortunately, we have such a point nearby. The market has created a support point for our use even before the slight uptrend had started. This correction is responsible for placing the dual stochastic indicator that opens the sell window. This support is again identified at the same level after the correction had run its course. These two points are labeled as Category 3 support levels on the chart.

It is quite significant that two Category 3 support points are found plotted on this chart at the same price level. Formations such as this one, referred to as a double bottom, are common and often eventually lead to a market reversal higher. A double bottom is usually more substantial than a single support point in that this price level has been successful in stopping a market decline on two separate occasions. When these formations are broken by market activity one can expect a greater reaction than what would be observed had the market penetrated only a single support point.

Our short position is entered as labeled when the market violates our support level. Note the comparative rapidity with which the market drops as it breaks through the price level of the double bottom formation just discussed.

With step three now complete, we must now move to step four to design a reasonable exit strategy for the trade.

Note the Category 3 resistance levels labeled on our chart. Again, as the decline progresses, normal market action creates lower and lower areas of resistance as attempts to correct the downtrend fail. These classic resistance points can be effectively used as trailing stop points initially to define our risk for the trade and then to protect profits. We place our stop at the level of the resistance point most recently formed before our market entry, as it is the closest available point at the time of entry. The effective level of the initial stop is marked by the dashed line labeled 1.

As the market declines further, another, somewhat lower, resistance point is formed, allowing us to drop our stop level to the level of the second dashed line. Note that shortly after the formation of the

resistance point that is used to set this stop level, a second resistance level is formed at exactly the same price level. It is significant that these two resistance levels appear at the same price that had previously caused the formation of two Category 3 support points just a few bars previously. Although the new leg down in this market has gained momentum from the plunge through the previous double bottom, the inevitable correction eventually begins. It is quite significant that on two occasions between 11:30 A.M. and 12:15 P.M. Microsoft makes a good effort at a corrective rally, only to be turned back by the price level that initially provided the impetus to the new leg of the downtrend. Previous heavy support has now turned into heavy resistance at the same price level. This is a specific chart pattern that the astute trader will observe often. The recognition of previous support turning into current resistance is a powerful force in the market. This phenomenon is responsible for the down move that persists for the rest of the session.

This instance once again illustrates the importance of “fading” stop placement around support and resistance points as first discussed in the previous chapter.

Had we placed our stop order at the exact level of the first resistance point in this series of two, there is a high probability that we would have been stopped out of our trade as the market reached this level before being turned lower again. By placing our protective stop slightly above resistance, or fading the price level, we force the market to break resistance before it is able to stop us out. Our entire theory is based on the breaking of support and resistance, not merely equaling it. The net result here is that we are able to maintain our position in the face of a significant market correction and continue to profit from the ensuing market drop rather than being stopped out near breakeven with nothing to show for our efforts but sweaty palms and a receipt for a commission.

As we move further through the trading session the market continues lower, fleeing from the selling pressure that surfaced at the double top marked by the twin Category 3 resistance points. Soon another resistance point is established as yet another corrective rally fails. This level is marked by the dashed line labeled 3, where we now place our stop. Note that at this point in the trade we have now locked in a profit.

The same scenario again repeats itself, allowing us once again to drop our stop, this time to the level designated by the fourth and final

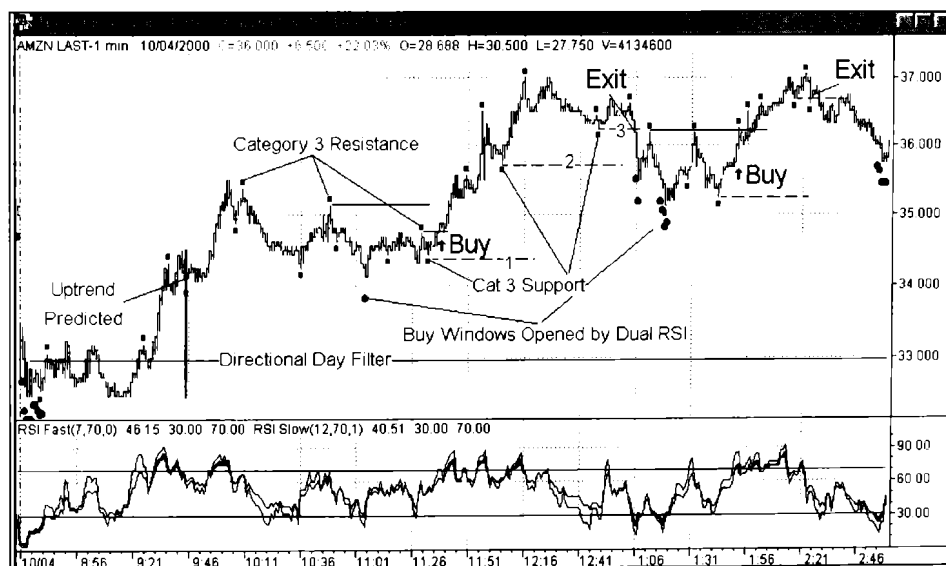
dashed line on the chart. We have once again locked in a greater level of profit for the trade.

Nearing the end of the session, the market finds support at its previous low and manages to rally enough finally to break through overhead resistance and stop us out of the trade, as marked on the chart.

Refer to this trading example often, because it quite effectively demonstrates the classical use of the four-step method of major and minor trend identification, trade execution, and exit using a trailing stop. Quite important also here is the graphic illustration of the importance of fading prices indicated by support and resistance points.

For our next trade illustration we will be analyzing the activity of the four-step process on an Amazon.com chart, this time using a one-minute time frame (Figure 12.6).

The first step analysis, using the Directional Day Filter, shows us that there is some activity on both sides of our filter line prior to the time used to make our final analysis, in this case 90 minutes into the session for Amazon. Although the activity advantage is only slightly

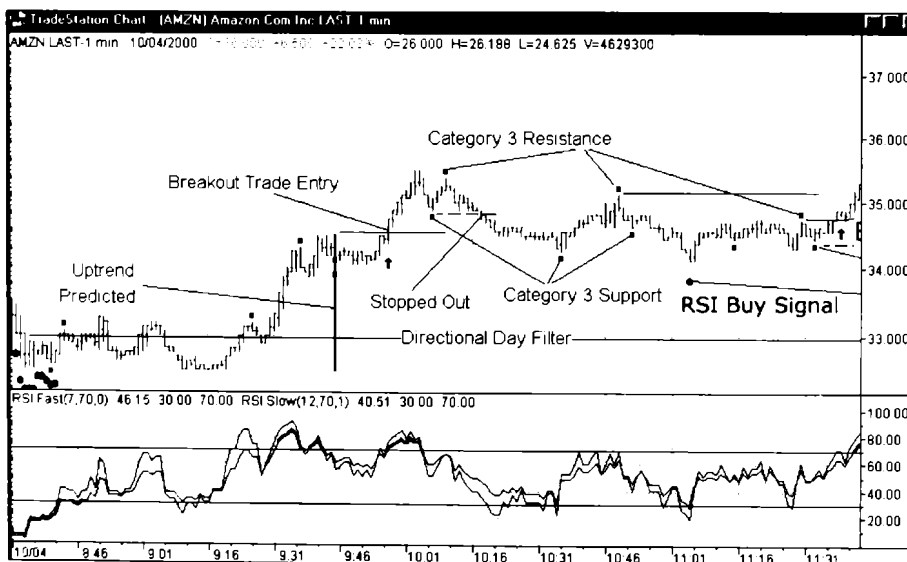


**Figure 12.6** Two buy signals are generated in Amazon.com. The first is a breakout trade using the early range from the Directional Day Filter, while the second is generated by the four-step method.

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in favor of a rally, the close on the timing bar near the top of the daily range at this point gives the day an upward bias. Also, the strength of the market at this point, combined with the signal from the filter lines, is telling us that the trend for the rest of the day is sideways to higher. With this in mind, we will be primarily looking for buying opportunities from this point on. Keep in mind that the picture is not 100 percent for a strong rally since our primary trend designation is sideways to higher. We must understand that significant setbacks along the way are a definite possibility.

With the prospect of a rally in this market, we are free to enter an early-morning breakout trade by once again placing a buy stop above the intraday high identified one hour into the market. The first solid horizontal line on Figure 12.7 details the placement of this buy stop, showing that it was filled as the market traded through the designated price 13 minutes after the order was placed. As the market moves in our favor, we are able to place a trailing stop slightly below the Category 3 support point that appears just after 10:00 A.M. on the



**Figure 12.7** The initial breakout trade is stopped out by Category 3 support with a modest profit.

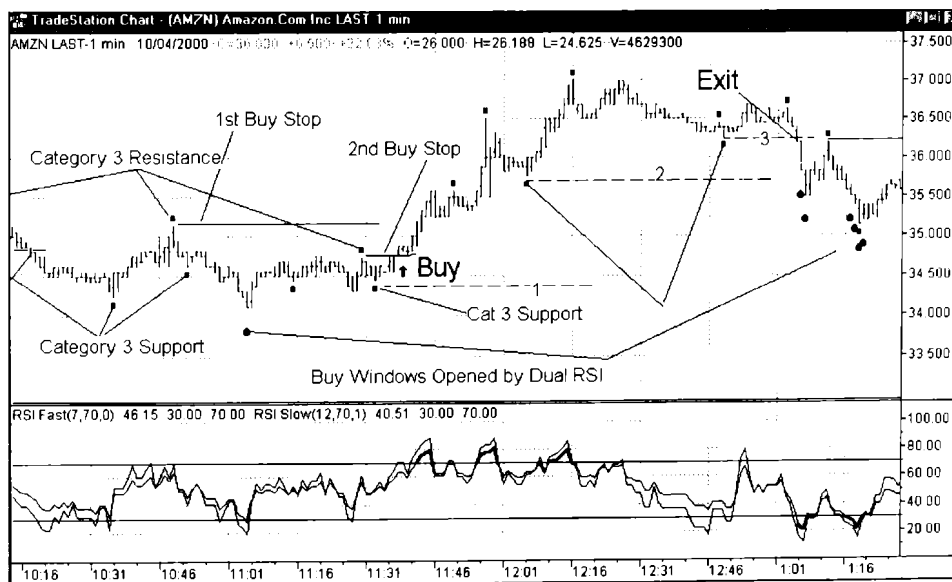
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chart. Our position is liquidated by this sell stop a few bars later for a modest profit.

Looking then primarily for additional buying opportunities, we can observe the first buying window opening shortly after 11:00 A.M. as we get an exhaustion reading from our dual settings on the RSI indicator (Figure 12.8). A fairly lengthy market correction has lasted for over an hour; thus this market is ripe for a rally. With the recognition of this new buy window step two is completed; we have now identified the exhaustion phase of the corrective move against the dominant trend for the day.

Going on to step three, we are able to identify the nearest overhead resistance at the Category 3 point identified just a few bars prior to the opening of the buy window by the RSI oscillator. This point is marked by the short, horizontal solid line above the RSI buy window dot. The actual Category 3 levels are represented by the small black squares above and below the price bars on the chart.

Shortly after 11:00 we are presented with a second Category 3 resistance point, which allows us to lower the placement of our buy stop



**Figure 12.8** The next long position is initiated with a buy window opened by dual RSI and the violation of Category 3 support. Trailing stops, placed courtesy of Category 3 support, eventually stop the trade out with a profit.

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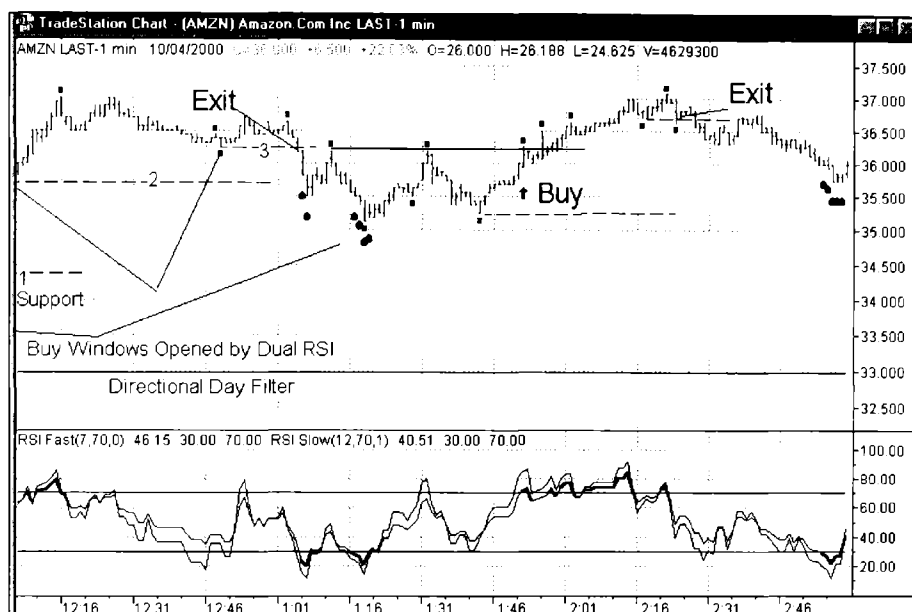
to this level. Remember, each resistance level placed by a given chart pattern carries with it equal probability of success. Therefore one should not hesitate to move stops to a lower level, thereby allowing the system to buy at a more profitable level. A few minutes after lowering the buy stop, our position is established as the market trades through our price level.

Our emphasis now shifts to step four where we actively manage an appropriate exit strategy for our trade. Our immediate attention therefore is directed to the most recent Category 3 support level, which appears at about the same time as the long position is actually established. The dashed line labeled 1 on the chart further defines the exact placement of the protective stop, again placed slightly below the actual generated support point to avoid being inadvertently stopped out during the formation of a double bottom.

As the market moves higher we then experience another slight correction, which forms a new, higher Category 3 support point, labeled as 2 on the chart. The protective sell stop is now moved to this level, locking in a significant profit for this trade.

After making another new high for the day and subsequently creating a double top on the chart, the market pulls back into another correction, again providing a new support point, labeled 3. Shortly after moving the stop to this new, higher level the market trades down through our sell stop, exiting the trade at a profit.

Within a few minutes of being stopped out of the first long position of the day, the dual RSI combination opens up a second buying window, as illustrated in Figure 12.9. Note that multiple signals are generated by the dual RSI pattern when this buy window is being activated. This is actually nothing more than a passing curiosity; the faster average can turn higher multiple times below the oversold area in a short period of time. This activity creates the multiple signals generated here. Keep in mind that signals such as these carry no greater significance than the buy window that was created earlier with only a single occurrence of the required pattern. Multiple signals generated in a short period of time, from this or any of our tools used to measure exhaustion of a market correction, have no greater weight in the general scheme of our trading system than a single occurrence of the same nature. Since step one has already been completed by defining the uptrend for the day much earlier in the session, it is acceptable to move immediately to step two of the process, which is accomplished by the appearance of the dual RSI signal.



**Figure 12.9** The last buy of the day is entered and exited using Category 3 support and resistance.

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Again we move on to step three, establishing a high-probability entry point. Note that in this case the appropriate resistance point as defined by our Category 3 chart formation rests a considerable distance from the point at which the actual buy window was opened in this case. This is of no immediate concern. As noted in previous examples, it is not uncommon for these entry points to be reestablished at lower levels prior to actually being activated. Again, as with the placements of the protective stops earlier, we are careful to fade the placement of entry stops by placing these orders slightly above the price designated by the actual resistance formula. The same theory applies here: We wish to enter the market only after resistance has been broken, not as it is reinforced by a double top. The effectiveness of our fading strategy is demonstrated well at this point (as shown in Figure 12.9) as the market makes a double top right at the previous resistance point and trades lower for a time before gathering itself for the push that actually goes through our buy stop, creating our second long position of the day.

Our initial protective stop for the second position falls significantly



below our entry point, an amount that may prove to be too risky for some traders. Most stop levels generated by these methods are available to the trader before the position is initiated, giving the trader sufficient time to make a decision as to whether to take the trade, and, if taken, to devise an alternate stop point more to his or her liking. As a general rule, traders will find their success will be greater over time by following a prescribed strategy for each trade, not making adjustments on each trade as they come up. However, being a realist and having had considerable experience with traders constantly tweaking systems, I feel an obligation to point out the possibilities here. As an alternative, one can choose to use another support point for interim stop placement. For instance, on this chart there is a Category 1 support point much closer to the entry point that could have been used for an initial protective stop. It is acceptable to use, for instance, Category 3 resistance for entry and Category 1 or 2 for exit if this is indeed a better fit considering the trading style and risk-carrying ability of the trader and the market being traded.

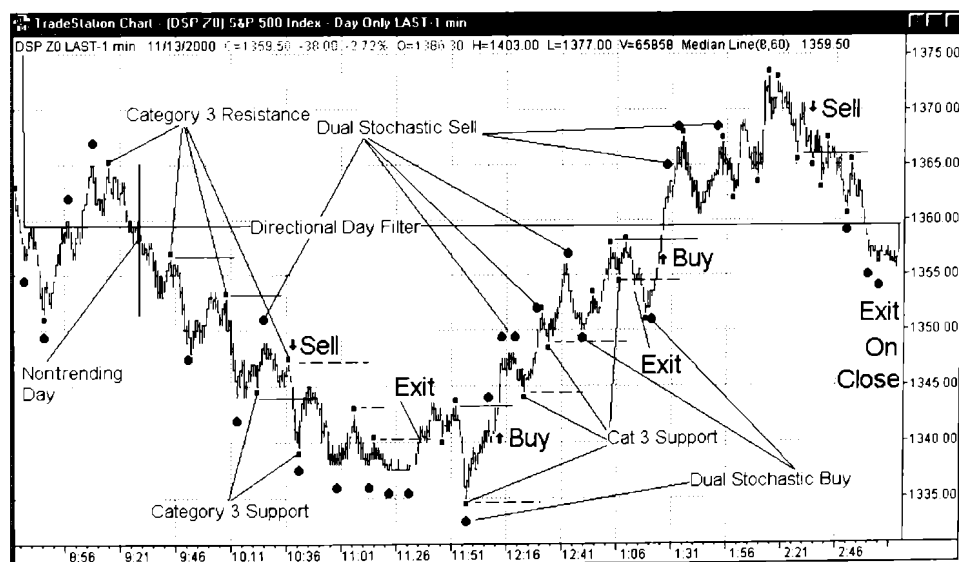
As you can see on this trade, we are able to move our exit stop to a profitable level that is activated shortly after the market tries and fails, for a third time, to extend its gains past the \$37 area.

Next we will use a one-minute chart of the volatile S&P 500 market (Figure 12.10) to demonstrate the manner in which our four-step method of entering and exiting a trade is able to handle a wide-swinging, wild day in the markets. Note that this day has a range of nearly 40 full S&P points. When all the dust has settled, there has been very little change in the market from the opening bell, as the close of the day has come in very close to the open. As you can see, there is considerable activity on the chart. For purposes of clarity I have broken the chart down into three sections and will analyze each separately. From the main chart presented here, observe that step one of our method identifies the day as nontrending one hour into the trading day. The market activity is relatively equal at the time the evaluation is performed. Also, the close of the determining bar is in close approximation to the filter line, again giving us little direction as to whether to expect a rally or a price decline for the rest of the day. Thus, faced with an indeterminate structure, we can expect a nontrending day.

One can certainly look at this chart and isolate several large trends that develop during the day and question the determination of a supposedly nontrending day. Recall, however, that our definition of

the trend of the day is based on one side or the other of the early range being in place quite soon in the day. A downtrending day is one that establishes the high of the day quite early and makes several new lows for the day. Conversely, an uptrending day features the early establishment of the day's low followed by multiple new highs being made by the market. Sideways days are defined as days during which both new highs and new lows are placed on the chart as the day progresses. Since the day pictured in Figure 12.10 does in fact set both new highs and new lows after the trend is defined early in the day, it meets our definition of a nontrending day. Readers should review Chapter 10 "Directional Day Filter," for further details on this process.

There is an alternative method that can be implemented on days that have been tagged with the nontrending label early in the day. Realizing that this determination is being made very early in the day on a historically volatile market, many traders will defer their judgment for an additional 30 minutes of the session. Doing so will allow any early trends to develop that may affect the ultimate trend prediction for the day. In this case, delaying the trend projection for another half hour

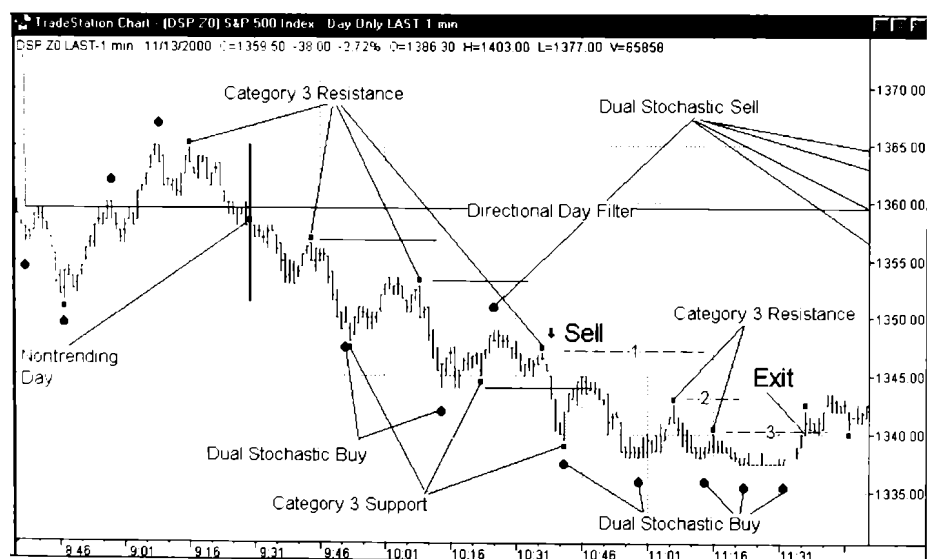


**Figure 12.10** Both buy and sell signals may be entered during a sideways day. Support and resistance levels are critical in selection of high-probability entry and exit points on a wide-ranging day.

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would have caused the trend determination to change from nontrending to lower for the rest of the day. Obviously, this altered trend prediction from the Directional Day Filter would have been technically incorrect, because a downtrend projection assumes that there will be no new highs for the day, which is not the case here. Although this altered interpretation was not effective in this particular instance, it is a strategy worthy of note that will be useful in selected situations under certain market conditions. Different markets certainly respond differently to this important trading tool. Traders are encouraged to evaluate carefully the historic performance of this indicator as applied to their favorite markets in light of their individual trading strategies.

Concentrating on the first portion of the chart (Figure 12.11) first notice that, as the market is making new lows shortly after the trend determination, we are presented with two successive buy windows opened by the dual stochastic indicators. Since we are enabled to take both buy and sell signals as a result of a sideways trend determination, we place a buy stop slightly above the Category 3



**Figure 12.11** The initial short position is entered as dual stochastic opens a sell window followed by penetration of Category 3 support. The position is liquidated upon violation of Category 3 resistance.

Chart created with TradeStation® 2000i by Omega Research, Inc.

resistance plotted slightly above the 1,355 level at 9:45 A.M. A solid line marks this level. As the market progresses lower a new, lower Category 3 resistance point appears, allowing us to move the buy stop to the lower level that is marked by the next solid line. Shortly thereafter a second dual stochastic indicator appears, reinforcing the system's buy window.

However, the next significant event shifts us into a selling mode as a dual stochastic sell window is opened, as marked on the chart. With our emphasis now shifted into a selling mode we immediately cancel the previously placed buy order, replacing it with a sell stop below the most recently plotted Category 3 support point. A solid line drawn just under the 1,345 line marks this level.

Our initial entry into the market on this day is accomplished when the market trades through our sell stop at 10:39 A.M., establishing our short position at 1,344 as the market makes a new low for the day.

Now that we have a position in the market we must focus on step four, which will protect our position as trading continues. To place our protective stop we look to the most recent resistance point created by actual market activity. This initial stop in this case rests at 1,347.20, slightly above the resistance point. A dashed line labeled as 1 marks this stop level. Also note that we now have additional dual stochastic buy signals appearing readily on the chart, indicating that the market is entering an oversold area.

At 11:10 A.M. we receive another Category 3 resistance point, allowing us to drop our trailing stop slightly below our entry level, thereby assuring us of not taking a loss on this trade. Our stop is moved to 1,343.10, slightly above the newly calculated resistance level. The dashed line labeled 2 marks the positioning of our new stop.

Shortly after 11:15 A.M. we receive a third lower resistance point that once again allows us to lower our buy stop, increasing the profit level now firmly protected. Dashed line 3 designates the new protection point. The position is stopped out at 1,340.20 as the market trades through our buy stop.

There is another alternative to the activity just described as our trade was exited. At this point we are receiving buy signals from our dual stochastic indicator. Also, the Directional Day Filter has told us to expect both new highs and new lows to be formed sometime today. If we had not entered a short position earlier we would be actively searching for our first entry into the market. With all

these factors in mind it is reasonable for us to consider a reversal trade rather than the exit that was just described in detail.

A reversal trade is simply a trade where, instead of only exiting the present trade, we also enter another trade in the opposite direction. In effect, a reversal trade is actually two trades, one being liquidated at the same time the second trade is being established in the other direction. In this example, instead of buying one contract at 1,340.20 to exit the short position, we simply place the order to buy two contracts at the same price level. One buy liquidated the short position while the other established the new long position.

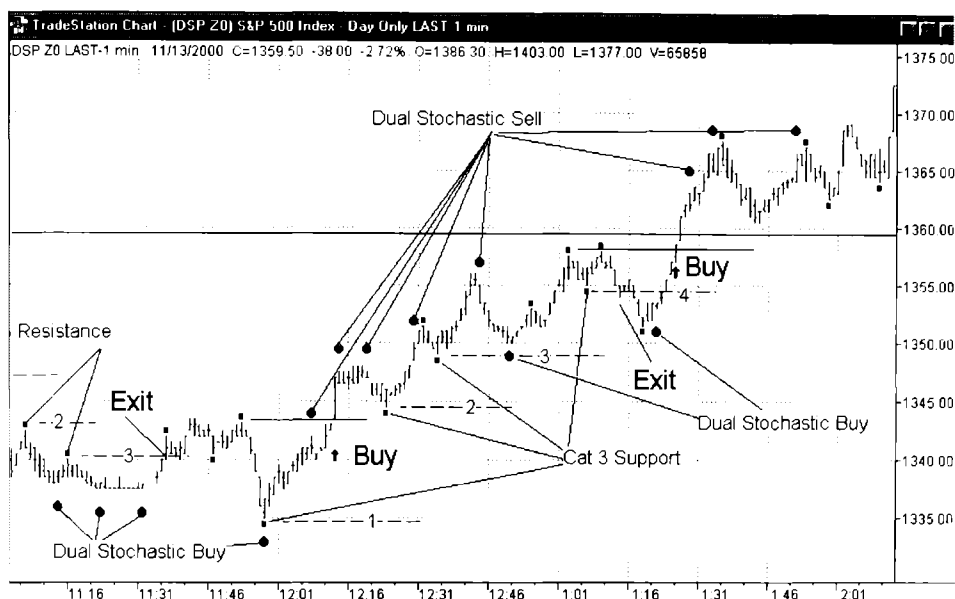
One common theory involving the subject of reversal trades, especially on sideways days such as this one, is a simple one. If you have sufficient reasons to exit your short position, you are quite sure that the market is no longer going down and it is about to go higher. If you are certain that the market is about to reverse, why not reverse to long, maximizing profit from your analysis that the market is about to change direction. Of course, as always there is the other side of the coin. If you are incorrect in your research and the market moves even lower, you have not only limited your potential for profit, you also begin immediately giving back accumulated profits as the market moves against your new long position. Reversals are a great strategy when you are right. If you're wrong you can get into trouble quickly.

It is only on nontrending days that we should consider reversing positions when presented with the details discussed in the previous paragraph. If the day has been designated as a rally day, we will consider only buy signals from our entry indicators. If the day is forecast to be in a downtrend we will consider only short positions.

Figure 12.12 provides details on the next trade of the day.

As mentioned previously, there is now a buy window open on our chart as a result of a new dual stochastic plot. Although a considerable distance away, our first high-probability buy point is located at 1,344, slightly above the most recent Category 3 resistance point. Obviously, simply buying the market when the dual stochastic buy signal appeared would have rendered a greater profit for the trade, but as we have discussed before the probability of this trade being successful is much higher by using our resistance point to place a buy stop. By acting in this fashion we are forcing the market to break previously defined resistance and prove to us that a trend change has indeed occurred.

Having entered on the long side, it is immediately necessary to



**Figure 12.12** Although the Category 3 resistance level is a considerable distance from the point at which the buy window was opened, it offers the safest method of entering the long side for the second trade of the day.

Chart created with TradeStation® 2000i by Omega Research, Inc.

enter a protective stop for the trade. Our initial stop loss rests slightly below the last Category 3 support point, delineated by the dashed line labeled 1. This stop loss point is particularly significant in this case as it is also located slightly below the low of the day so far. Often the floor traders will run the stops beneath the daily lows, expecting the market to drop even further if they are successful. We do not want to stay in a long position should this event occur, hence a second valid reason for stop placement at this point.

As was the case in previous trades, as the market rises and new Category 3 support levels are uncovered, we are able to pull our trailing stop up behind us, first decreasing the potential loss for the trade and then locking in higher exit levels.

As the market reaches possible exit levels, it is important to regularly monitor the various buy and sell windows as they open and close. In this instance, we are working under the influence of sell windows for a considerable portion of the uptrend. Had the market penetrated any of the sell stops placed at levels 1, 2, or 3, it

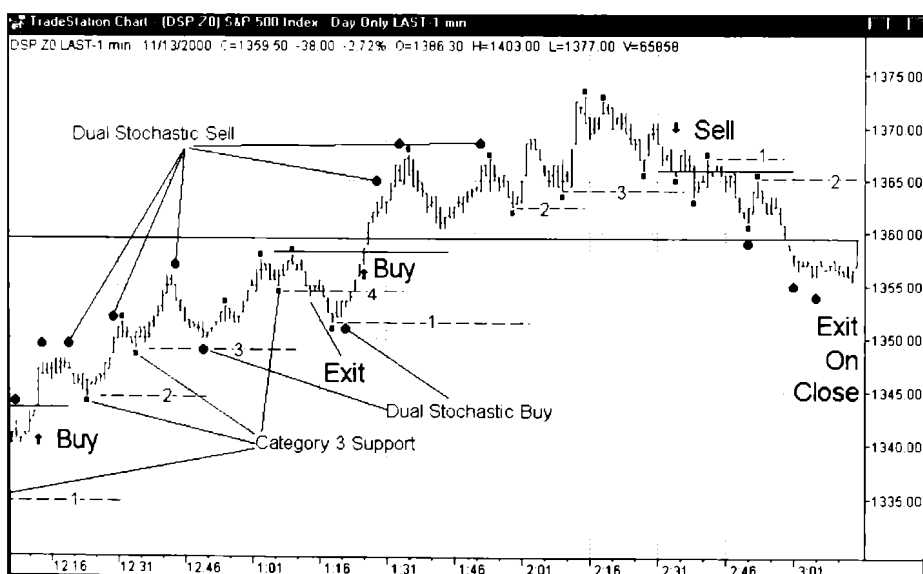
would have been permissible under our system rules to reverse our trade at these points rather than simply exit. The reversals are possible because a selling window is open at the time of the reversal.

However, as the market finally takes out our sell stop as level 4 is penetrated, system rules allow only an exit since there are no sell windows open at the time. Hence, the position is exited at 1,354.50 for a profit of around 10 S&P points.

The final section of the trading day is shown in Figure 12.13.

The same situation that allowed only an exit on the previous trade, the open buy window from our dual stochastic routine, now allows us to place a buy stop above the last plotted Category 3 resistance at 1,358.50. This buy stop is soon triggered as the market continues higher. The black up arrow designates the actual trade.

Granted, the overall strategy would have been improved had we simply stayed in the long position rather than exited and then entered again at a higher level as we are doing here. However, at the point of the previous exit there was a significant chance that the market could have turned here, gone lower, and wiped out a significant



**Figure 12.13** The last trade of the day is a reversal trade since a sell window is open when the market penetrates Category 3 support.

Chart created with TradeStation® 2000i by Omega Research, Inc.

amount of the profit already realized by the trade. Recall from Chapter 10 on the Directional Day Filter that this line often creates a resistance level itself. This was certainly a possibility here and one worth avoiding with a fairly tight trailing stop. Certainly the bigger profit would have been desirable, but remember that you win the day trading game with singles and doubles, rarely with home runs.

The initial stop for our new long position rests slightly below the reaction low that stopped us out of our first long position, as identified by the closest Category 3 support level. This dashed line is marked as 1. Subsequently, as the market continues its rally, we are able to move our sell stop to points 2 and 3.

The next support level, marked by a solid line, is actually a reversal point as we are operating in an open sell window at this point. The sell window is a function of the last dual stochastic indicator plot placed on the chart at 1:50 P.M. Since there are no intervening buy windows opened up by this indicator, the sell window is still active when the market violates the stop level marked by the solid line.

Although it is a questionable decision to take a new position this late in the trading session, especially in light of the recent strong rally, I have chosen to leave this trade on the chart to once again illustrate the reversal principle as it is applied under this trading scenario. Two contracts are sold at this point, the first liquidating the present long position and the second initiating the new short position.

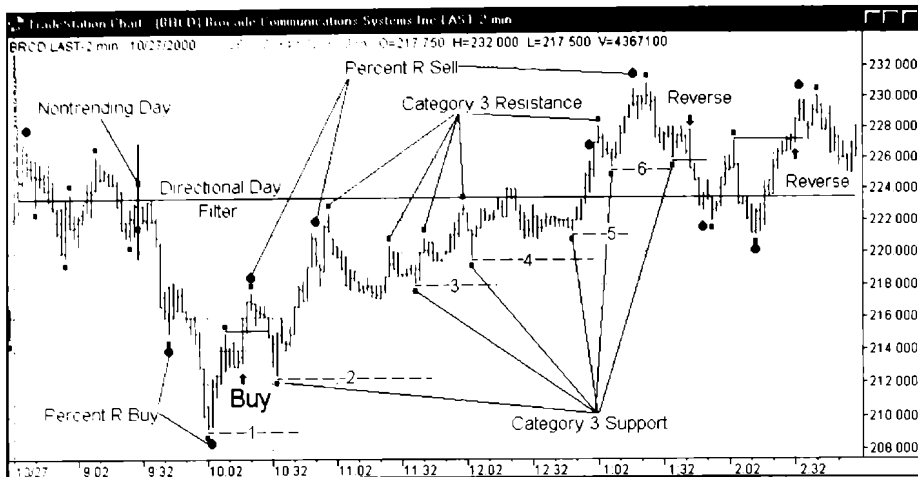
Again, as with previous trades, the protective stop is placed slightly above the most recent Category 3 resistance, as marked by the dashed line labeled 1. The market later allows us to move the stop to the number 2 dashed line. This stop is not activated by market activity, and the position is closed lower at the end of the trading day.

Next we will examine a trading day that starts in a similar fashion but ends with a considerably different result (Figure 12.14).

Here we have a two-minute chart of Brocade Communications Systems Inc. (BRCD) stock as it traded in late October 2000.

Step one indicates that we again have a nontrending day for our strategies to handle. At the 60-minute point on the chart the market activity is fairly well distributed above and below the plotted filter line. Although the close of the signal bar representing the entire range of the day so far is below the midpoint of that range, visual observation is not convincing enough on either side of the matter to give this day an up-





**Figure 12.14** The Directional Day Filter, dual Percent R, and Category 3 support and resistance generate three trades during a sideways day.  
Chart created with TradeStation® 2000i by Omega Research, Inc.

ward or a downward bias. This is a day during which we will expect both new highs and new lows to be placed on our intraday chart.

This chart is very similar during the first 75 percent of the session to the chart of the S&P 500 just discussed. An early sharp drop triggers the opening of a buy window, this time using our dual settings of the Percent R oscillator to determine the short-term trend of the day for step two of our four-step method.

Our initial long position is established at \$215.25 as the market trades through our buy stop located at this level by our familiar Category 3 resistance point. The initial stop for the position is located first at the most recent Category 3 support, again in this instance found just below the intraday low. The initial stop is first placed at slightly above the \$209 per share level. Granted, this stop level could expose the position to a loss level that some may consider too great for their comfort zones. Those with this opinion may have considered the fairly flat spot formed by several lows immediately prior to the buy signal to be a preferable location for the initial stop simply due to the proximity of the stop to the entry point. This stop selection creates a lower potential loss should the stop be activated. Unfortunately, this stop placement would have been activated shortly after it was placed, creating a loss for the position. There is a defined risk that is present in

any trade. Arbitrarily altering the placement of stops rather than following predefined rules is usually a mistake.

As before, our Category 3 support provides successively higher trailing stop placement as the market trades higher. A sell window remains open for the entire rally courtesy of the dual Percent R indicator, giving the trader the option of a reversal at any of the stop placement points designated by the dashed lines. It is questionable to enter into a reversal trade in this situation, because we find ourselves in a position that has been maintained for a significant period of time and has accumulated significant profits. Although the index futures can undergo swings late in the day that can be profitable trading opportunities, it is more rare to see individual stocks do so. The much more common occurrence is for an individual stock issue to cap off a daylong rally by simply finishing out the session meandering back and forth as it establishes a rather broad closing range for the day. There is probably a fundamental reason for the rally (or decline, in some cases) to have proceeded as it has for the day. The chances for this fundamental factor to change abruptly during the last portion of a trading day and precipitate a significant trend in the opposite direction of the dominant trend for the day is fairly remote. Hence, the possibilities of adding to the bottom line with a reversal trade, which in effect is taking a position against whatever factors are responsible for the big move, are not great. With these assumptions in mind it is usually prudent simply to allow the trailing stop to exit such a position and wait for another day to trade this issue again. I have diagrammed the reversal on this chart as an example of how this routine can be used to generate these trades, not necessarily as a recommendation to do so.

As the market rises above the \$228 area, a reversal sell stop is placed at \$225.25. Assuming our benchmark 100-share trade level for these examples, the order placed by the trader would read "sell 200 shares \$225.25 stop." The first 100 shares sold will liquidate the original long position, while the remaining 100 shares establish the new short position.

While still in the new short position, the predominantly sideways trend now adopted by this market stimulates the opening of a buy window by the dual Percent R oscillator. We are prompted once again to reverse the position back to the buy side when the market trades through the solid line marking the resistance point pegged by the Category 3 resistance. This reversal produces an approximate \$1.50 per

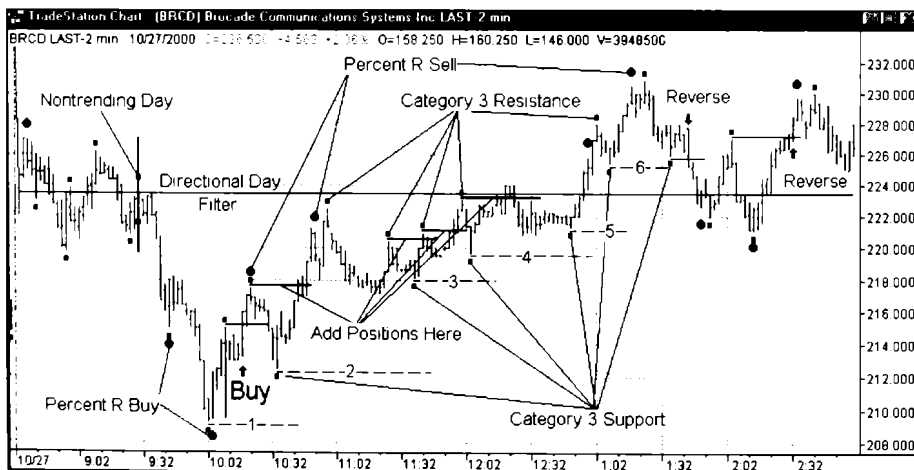
share loss. Another small loss is taken as the new long position is closed out on the daily close at a level slightly lower than the entry.

You will note on this chart that I have been careful to identify the several Category 3 resistance areas. Why do this when they are not involved at all in the long trade we have watched unfold?

These points can be used as supplemental entry areas should the trader wish to add to a winning position as the day and the trade progress in his or her favor. Recall from several previous discussions that each resistance point formed by the same chart pattern has an equal probability of success. In actuality this theory then is suggesting that each overhead resistance point, when combined with an open buying window, is as valid an entry point as the one that initiated our initial long position.

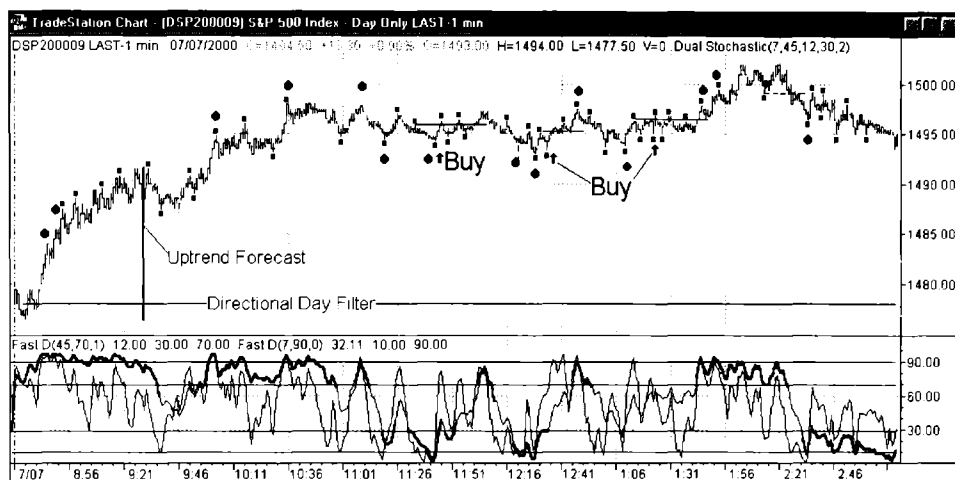
Figure 12.15 below designates appropriate points on our chart at which additional positions may be added as the position becomes more profitable. Although it is usually deemed unwise to add to a losing position, it is usually considered acceptable, through a variety of pyramiding strategies, to add to a profitable position. Our Category 3 resistance points as illustrated here certainly provide a high-probability method of entering additional long positions.

Figure 12.16 shows an S&P chart that was used earlier in Chapter



**Figure 12.15** Several points at which it would be acceptable to add to a profitable position are selected by Category 3 resistance.

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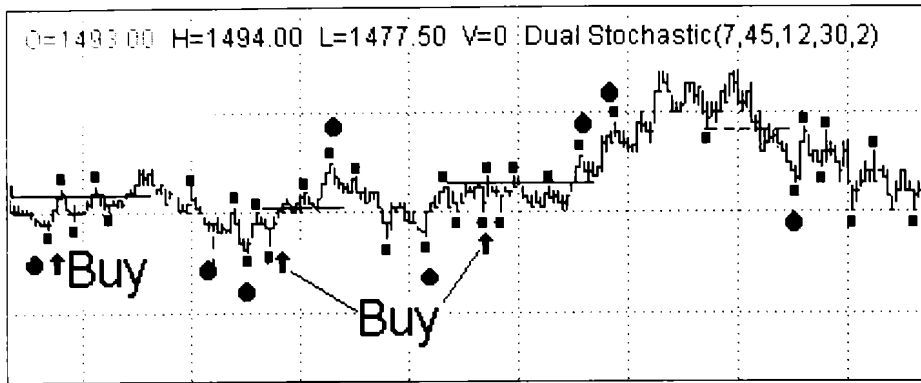
**Figure 12.16** Although the market turns into a sideways affair after an uptrend was predicted, trading from the long side only using the four-step method is productive.

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10, "Directional Day Filter," to explain the relationship between the indicator and successive new highs as they are formed. The filter has predicted an uptrend here, so only buy signals will be considered for actual market entry. Here we have applied the dual stochastic indicator (black dots) and the Category 3 support and resistance indicator (black squares).

Our first buy signal comes at the 11:45 time frame as the market trades through overhead resistance marked by the Category 3 formation. This trade is stopped out for a two-point loss a few bars later. The next two buy signals are exited at the dashed line slightly below the 1,500 level as the stop loss placed at that point is activated as the market drops through this price. Details of these trades can be examined on the expanded chart (Figure 12.17).

As is obvious to anyone who has traded at all, all days are not the perfect ones to trade. The day just reviewed is such a day. All indications are from the start that we should have a day in the S&P market that should provide several profitable buying opportunities as things progress through the session. As you can see, this was not the case today. However, we didn't lose our shirt, either. The real test of any trading strategy is to see how it performs on days when it doesn't



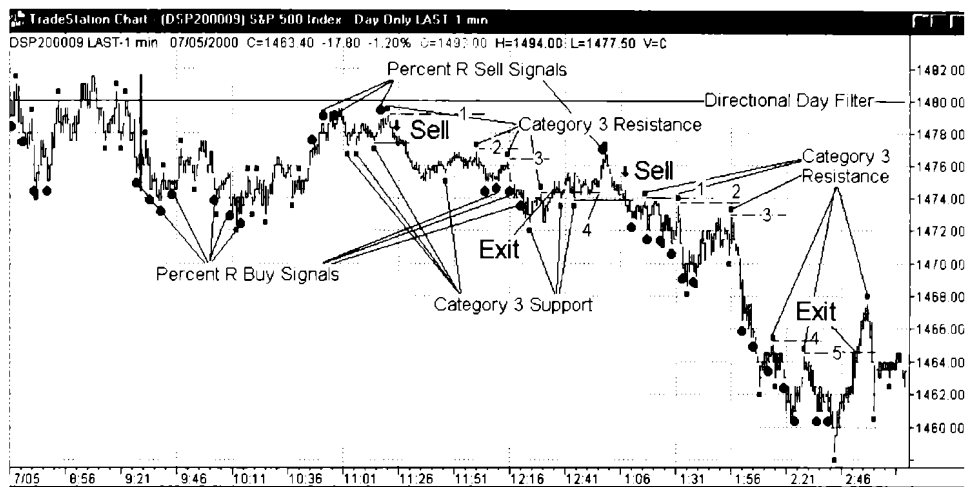
**Figure 12.17** Two buy signals are issued on the nontrending portion of this day.

Chart created with TradeStation® 2000i by Omega Research, Inc.

work as well as on other days. As you can see here, on a day when the market didn't set up as well as we would have liked, the fact that we traded only on one side of the market and used entry and exit stops as dictated by previous experience kept us from getting our heads handed to us by the market.

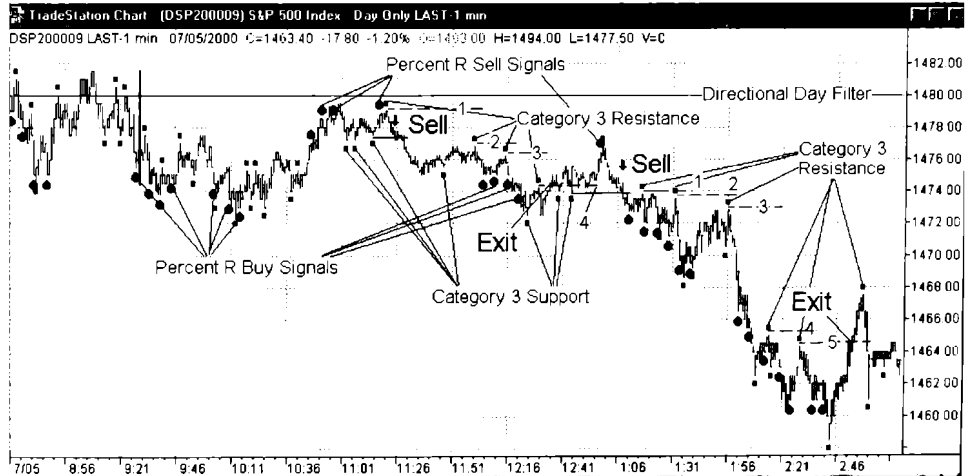
Figure 12.18 was first used in the Directional Day Filter chapter to demonstrate the activity of the indicator during a down day. I have described the entry and exit of two trades generated by our strategy on this chart. As you can see, a considerable amount of detail is required to demonstrate adequately the interaction of the various components that are involved in the placement of the entries and exits for the trade. For this reason the chart is reproduced as several separate segments to more clearly explain the anatomy of each transaction.

In Figure 12.19, a one-minute S&P futures chart, we first determine that this is indeed a day during which it is expected that there will be additional new lows formed for the day after one hour into the market. The Directional Day Filter also is predicting that there is a low probability that there will be new price highs for the day, therefore meeting the criteria we had established earlier for determining that this will be a down day in the market. Examine the structure of the chart at the 60-minute point and note that there is indeed a majority of the price activity below the filter line and that the close of the 60-minute bar is in close proximity to the intraday low at this point.



**Figure 12.18** Two sell signals are issued by dual Percent R and Category 3 support. Category 3 resistance provides the information necessary for exiting each trade.

Chart created with TradeStation® 2000i by Omega Research, Inc.



**Figure 12.19** Step one determines that the trend for the day should be lower since most of the activity is below the filter line prior to the 60-minute bar and the close of this bar is in a weak position.

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To define the minor trends of the day as they develop, we have in this instance chosen to use the Percent R oscillator, using a 75-bar sensitivity for the slow average and a 50-bar setting for the fast average. For review, this dual setting routine for Percent R must have several parameters satisfied to issue a trading signal. First, for the buy signals on the chart, the slow setting must generate a plot below the oversold threshold of 30 percent. While this condition exists the fast setting must first fall below its individual oversold line at 10 percent and then turn up on a closing basis.

In actual trading one may wish to use multiple oscillators for the short-term trend determination. In fact, this is the recommended method. Unfortunately, the display of multiple dual settings is not practical on small black-and-white charts. When one is able to expand these charts and color code the various indicators the interpretation of the individual patterns is much clearer. We will restrict each chart to a single oscillator for the short-term trend simply for purposes of visual clarity and ease of explanation. Near the end of this chapter a few charts will be included showing all oscillator settings.

Since on this day we will be concentrating exclusively on the sell side of the market, the buy signals from our Percent R combination will be ignored for the purpose of signal generation from the strategy being used in this chapter. It is, however, interesting to note on this segment of our chart several signals against the major trend that a more aggressive trader could use to generate trades that could be useful.

A corollary theory to taking trades only in the direction of the major trend of the day also exists. This is by no means a departure of the main approach to take trades only in the direction of the major trend of the day. This alternate approach is presented only as a choice for the more aggressive trader whose trading style and risk-carrying ability dictate to him or her that more than one or two trades should be taken each day in an individual issue.

This theory allows the taking of trades against the major trend, with certain limits on their parameters. While waiting for the major trend to resume, there are often short-term opportunities of which aggressive day traders may want to take advantage. The theory here parallels our main strategy in that we will take all trades as directed by market-generated support and resistance points. Here we also use another approach by taking trades against the major trend,

only limiting their parameters as to length of time or amount of profit generated by each trade.

In the countertrending mode we use the same theories for entering a trade as are used to establish a position in the direction of the major trend. First, in the example of a long trade on a down day, we must first have a buy window opened by one of the oscillator indicators. Then an appropriate stop level is located using the resistance point closest to the recent market activity. The position is entered as described when the market trades through the stop. So far, there is no difference in the initiation of this trade and one taken in the direction of the major trend. However, it is in the exit phase that things must take on a different light.

Since we are trading against the trend, we are taking more risk in these trades as compared to those taken in the direction of the trend. If these trades are indeed to be productive this risk needs to be reduced, if not eliminated. Although there is no method certain to accomplish this task, attempting to take profits on a limited scale as opposed to riding the trade for all it's worth is certainly a step worth taking.

Taking profit on a trade at a given target is an approach used by many to extract smaller but consistent profits from a short-term strategy. Although profits are limited by the very nature of this exit, they can usually be taken in a relatively short time frame.

A timing exit is also a strategy worth examining when considering an exit strategy for these countertrend trades. Simply exiting the trade after a given period of time can be productive.

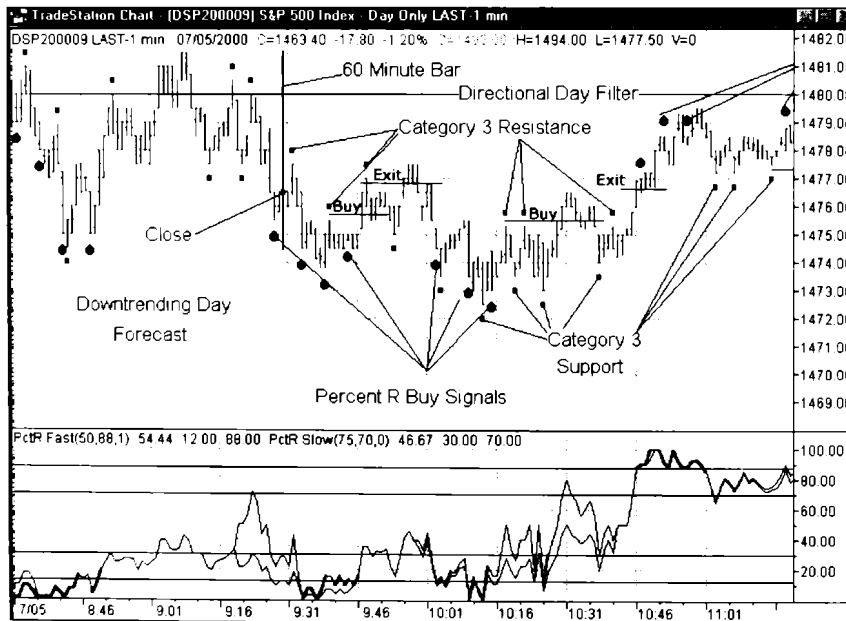
Both of these exit strategies are derived from the basic observation that the corrective phases of trending markets do not last long in either time or price when compared to the major trends that appear. Thus there appears a method for designing an exit strategy for these shorter trades against the trend. Traders wishing to utilize these strategies are encouraged to examine carefully the countertrends that develop in their favorite markets, for both average time spent during the correction and also the average price movement that usually results from these moves. You are then able to construct an exit strategy by exiting after the average price movement has occurred or after the average amount of time has expired. It is also possible to devise a strategy encompassing both of these critical parameters.

Considerable observation of the S&P market has shown that a full point can be taken from such countertrends with a significant proba-



bility of success. Figure 12.20 illustrates the manner in which two such trades are generated early on the day in question, after the major trend of the day has been identified and before any trades can be entered in the direction of the dominant trend.

The initial countertrend trade occurs shortly after the 60-minute time frame that determines the major trend. Buy windows are opened up by the dual Percent R buy signals that appear under the market. The buy stop used for entry is placed at 1,475.70, slightly above the Category 3 resistance point at 1,475.50. The buy order is soon filled. With our short-term exit strategy, we can place a limit order one full point above our entry price. The trader should make a practice of entering the limit sell order one point above the actual fill price received when the order is filled. In this fashion one is able to remove any slippage occurring on the entry. This exit strategy is completed when the market reaches the designated price level. Although we have illustrated this trade as exiting exactly one point above entry, this exit as marked does not allow for any



**Figure 12.20** Although the highest-percentage trades are generated in the direction of the major trend, trades against this trend are possible under specific circumstances and using restricted parameters for exits.

Chart created with TradeStation® 2000i by Omega Research, Inc.

slippage on the entry. However, one is able to see on the chart that there is sufficient room above the exit level to allow for the addition of any slippage to the exit price. In this case, even if the trader had been forced to add as much as .50 to the entry price to compensate for any slippage experienced on the trade, the exit price at 1.00 above the adjusted entry would still have resulted in an exit at our target price.

The second countertrend trade sets up in much the same fashion. Once again the buy windows are opened by the dual settings of the Percent R oscillator indicator as the market recovers from the formation of a new low. Our entry price is again strategically located just above established resistance, this time set at 1,475.50, fading the Category 3 resistance point at 1,475.30, again to avoid a long fill on a double top.

The new long position is soon filled as the market trades through our stop at 10:30 A.M. The market rallies briefly, pulls back only to rebound from the 1,474 level, then trades progressively higher, filling our price target placed 1.00 above our entry level. Again, the prices rally through our target price far enough to compensate easily for a higher exit price, which may have been placed to cover any slippage experienced on entry.

Obviously this trade could have been much more productive than the small one-point profit we have claimed with our fixed point exit. However, remember that we are trading against the major trend of the day in this instance, which carries with it an inherently higher risk level. Attempts to carry these transactions beyond what their historical record indicates is prudent can lead to a success ratio for these types of trades that will ultimately be found to be unacceptable for most traders.

An interesting point here is that, in both cases just covered, the new buy window opens as the market is establishing new intraday lows for the session. It is not uncommon for these countertrend trades to develop in this fashion, especially early in the day as shown here. As discussed elsewhere, individual traders, and in this case those in the S&P pit especially, will drive the market to new lows or new highs in an attempt to run the stops above or below current intraday highs or lows in an effort to capture the market surges that accompany the rapid filling of market orders. Unless there are a huge number of stops resting above or below these intraday highs and lows, these so-called fishing expeditions rarely last for more than a few minutes. What usually follows is a fairly rapid recovery from any new highs or lows that are placed due to the stop-running activity. Traders who use this tech-

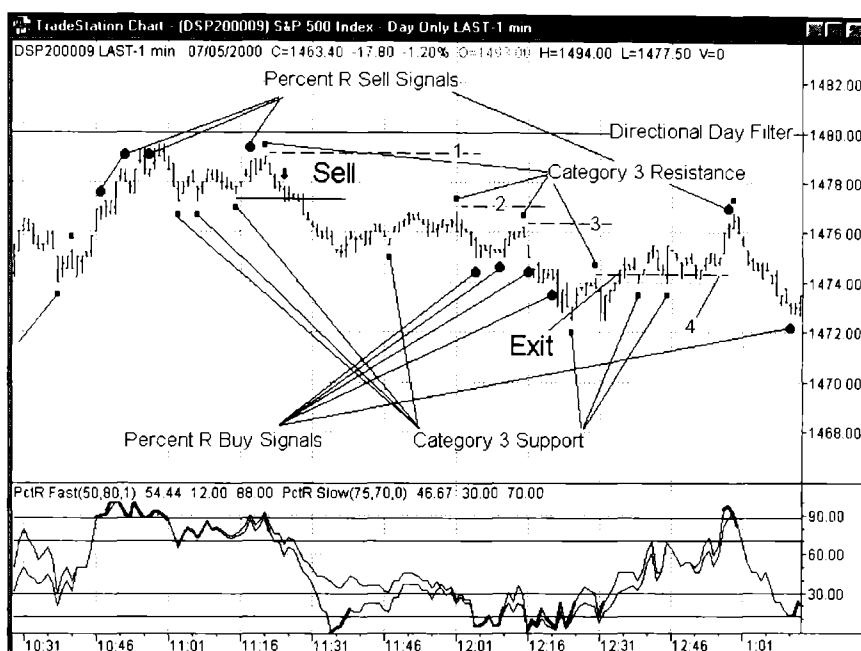
nique are extremely familiar with market reactions around intraday highs or lows. When they are successful in driving prices through these levels it is quite important that they recognize when this small move is near its end and the time has come to collect profits for the trade and move on. Being quite familiar with the chart patterns that develop on these trades, these traders are often able to cover their positions quickly. This buying pressure, in the absence of any immediate sellers since they have all now had their sell orders filled, can quickly propel the market higher. These mini rallies can also be accelerated, since those holding the sell stops below the market must cover in the face of mounting losses. The end results of these games are often the quick “pops” in prices that frequently follow the establishment of new intraday lows, in this case (obviously, the same is also true on the opposite side of the market as new intraday highs are made).

Although these rapid recoveries from new lows happen quite often, traders need to be aware that these small rallies must be traded somewhat conservatively if they are to be consistently profitable. Often these recoveries do not extend to the degree necessary to produce an adequate return. Simply buying the market, in this case on the assumption that the new low move has run its course, may not be wise, as it can quickly reverse lower. Our basic strategy that utilizes the placement of buy stops above established overhead resistance is still a logical choice for entering these quick trades against the major trend. Utilizing this support and resistance technique places another hurdle for the market to surpass before we can be convinced that this move is indeed worth trading.

Should the market turn back in the face of this resistance, chances are high that the reaction move would not progress far enough to produce a decent return for our efforts. On the other hand, should the recovery from the newly established low really have legs, the strength exhibited here should be great enough to break previous resistance and go on to give us an adequate return. In other words, our basic use of resistance to enter these trades again provides a filter of sorts to keep us out of some of the trades that may not produce adequate profits.

Again, this alternate strategy is not meant for the beginning trader. Only experienced, aggressive traders desiring additional trading activity should consider taking trades using this countertrend method.

Figure 12.21 details the first of our two short positions that are taken in the direction of the dominant trend.



**Figure 12.21** As the market encounters resistance in the vicinity of the Directional Day Filter line, Category 3 support is broken, causing entry into the first short trade in the direction of the major trend of the day.

Chart created with TradeStation® 2000i by Omega Research, Inc.

The initial noteworthy event occurs in conjunction with the price bars approaching the Directional Day Filter line during the 10:45 to 11:30 A.M. time frame. Recall from earlier discussions that this line can function as an intraday support or resistance line, often causing the market to change directions at these points. This chart again displays this tendency, the market is turned lower at this line on two separate occasions within a short period of time. Also at this juncture we receive a series of sell signals from the Percent R dual oscillator, adding to the negative picture for this day in general and this time frame in particular.

With step one, the determination of the major trend for the day, and step two, setting the short-term trend, behind us for the moment, we now look for a support area that will serve as a high-probability location for our buy stop to facilitate market entry. Fading the 1,477.50 support level, the sell stop is placed at 1,477.20 as indicated on the chart by the solid line drawn at that level. The short position is en-

tered at 11:25 A.M. as the market trades through the stop. Note that there are two additional Category 3 support points plotted immediately prior to the point that generated our initial market entry. Although not marked as such on the chart, these are points that could also be used as levels to enter additional short positions, adding to the original sale. Recall that each of these support points carries the same probability of success as any other created by the same chart pattern.

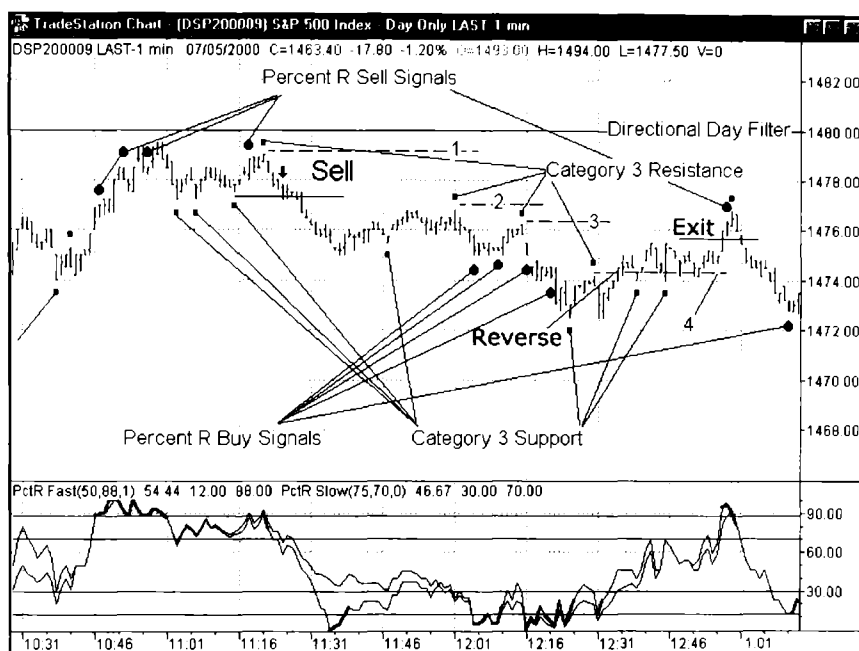
Our protective stop is immediately placed slightly above the most recent Category 3 resistance level at 1,479.20 for an acceptable risk of only two S&P points. This dashed line is labeled 1 on the chart.

At 12:05 P.M. the next Category 3 resistance level allows us to drop the trailing stop to 1,477, labeled 2, which effectively gets to a break-even trade. The next Category 3 resistance forms at 12:23 P.M., allowing us to drop the stop level down to 1,476.40, labeled 3, giving us a bit more breathing room for the trade. The actual trading price at this moment is at 1,473, indicating that we are maintaining roughly the same risk in the trade as we assumed at the time the position was initiated.

As the market begins to level off, respecting the previous intraday low, we have yet a fourth Category 3 resistance level placed at the 1,474.20 level. Fading this price again, so as not to fall into the double-top trap discussed previously, we place the actual trailing stop at 1,474.50, defined by the dashed line labeled 4. The market trades through our stop a few bars later, closing out the trade at the stop price of 1,474.50 for a gross profit of three S&P points. Note that we speak here of gross profit, not net profit. Slippage and commissions must be deducted from the gross amount of the trade to arrive at a net profit figure for the transaction.

Note at this point that we are now operating in an open buying window as dictated by the recently plotted buy indications created by our indicator using dual settings of the Percent R oscillator. One could certainly be tempted at this point to consider a reversal strategy rather than merely exiting the trade as illustrated. Over the past hour or so the market has entered a boring, sideways, low-volume mood, which in many cases can be indicative of a sideways day. Therefore, we now have another adequate setup for entry into a second trade against the major trend. Figure 12.22 details this trade.

Once again, readers are cautioned that these trades against the trend of the day carry a much higher risk profile than trades generated in the direction of the dominant trend. These examples are presented



**Figure 12.22** A second countertrend trade is possible as our first short position is closed out. Remember that these trades carry a significantly higher risk level.

Chart created with TradeStation® 2000i by Omega Research, Inc.

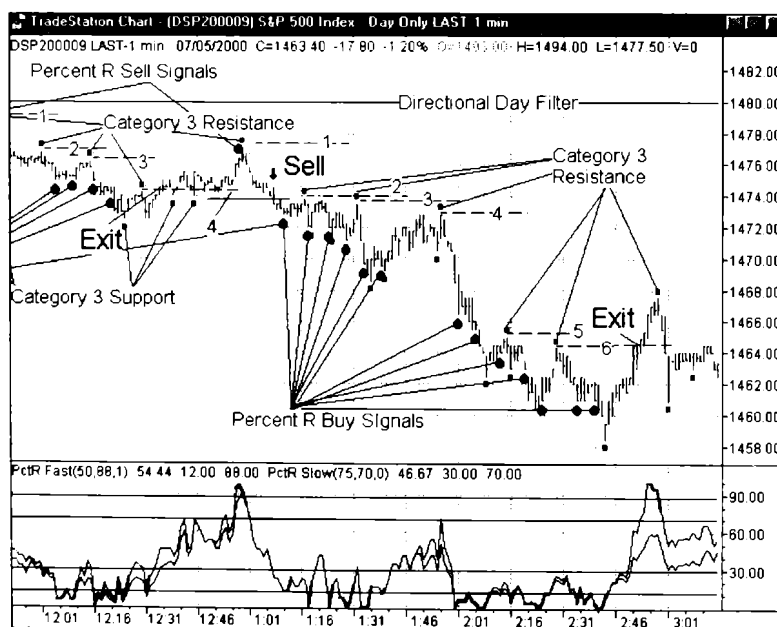
for the benefit of those wishing to trade more often throughout the day and who are willing to accept the increased risks while doing so.

Note that at the time of the exit from our first short trade of the day several important formations are present on our chart. First, we are operating in a buy window, since the most recent formations from the dual Percent R are buying signals. Also, we have a recent resistance point available for signal generation.

As mentioned previously, the buy stop to exit the short trade is placed at 1,474.50, slightly above the Category 3 resistance point. However, those wishing to enter a long countertrend trade may simply enter a reverse trade at this point rather than an order to exit the market. In this instance, as will be the case with many of these countertrend trades, the exit point for the trending trade is the entry point for the countertrending trade. This is typical largely due to the fact that many of our trending trades will exit under a buying window from a short trade or under a selling window from a long trade.

Our new long position is entered on the stop at 1,474.50. The market now consumes 23 minutes just to rally a single point from our entry, allowing us finally to claim our one-point profit. Again, there is enough left of this rally as we exit to give us room to have moved the exit stop higher to compensate for slippage. The fact that the market consumed nearly a half hour to rally only a single point is significant in that this is a graphic display of the overall weakness of the market on this particular day, especially since this feeble rally came on the heels of a test of the intraday low. At this time this occurrence should further strengthen our already established case for a continued down move for the remainder of the day.

The second and final short position of the day is detailed in Figure 12.23. This trade begins again with step two as a new selling window is opened up by the dual Percent R indicator shortly before 1:00 P.M. Our immediate response is to place our sell stop slightly below the last valid Category 3 support level at 1,474, locating the actual stop at



**Figure 12.23** The final sell signal of the trade, while taking a while to get started, turns out to be the best transaction on this chart.

Chart created with TradeStation® 2000i by Omega Research, Inc.

1,473.70. In a few minutes our new short position is established as the market hesitatingly moves through this level. Note here again that the market is showing respect for the current intraday low at 1,472.50, unwilling at this time to enter the uncharted waters below. For a time the prices are trapped between the intraday low and our previous support area, which was used as an entry point for our trade.

Our initial stop for this trade is the last valid Category 3 resistance plot, located in this instance slightly above the high of the 12:49 P.M. bar at 1,476.80, giving us again an acceptable risk of slightly more than three S&P points. An important point becomes evident as this trade progresses. The normal progress of these trades is to move the protective stop to each new, lower Category 3 support level as it becomes available on the chart. In this case, as marked on the chart, it lies just above the 1:17 P.M. bar at 1,474. Technically, this is the correct level at which our stop must be placed to satisfy the strict requirements of our base system. But is this the correct spot for a practical stop?

Looking closely at the formation of the Category 3 point that was used to place the latest stop, marked as the number 2 dashed line, you will note that it was only a single tick that actually placed our stop. Recall from previous chapters that the formation of a Category 3 resistance pattern requires that the high that marks the actual resistance point must have three previous bars with lower highs as well as three following bars with lower highs. Technically, a center bar with a high that is only one tick higher than the six surrounding bars fulfills these requirements. This is almost the case here. Careful observation of this resistance point tells us that the high bar of the formation is only one tick greater than the three previous bars. This same high is also only one tick greater than bars one and three that follow.

With these considerations in mind, the practical trader must question the advisability of placing a stop this close to the actual market. A stop placed this close has a very high probability of being hit, taking you out of the market prematurely. The market forces that take you out of the market in this manner could easily be the result of normal market noise, the normal random price activity present in the market. This is not the type of activity that you wish to put in charge of the balance in your trading account.

Compare this resistance point with the next point, which is also generated by a Category 3 resistance formation. Coincidentally, the price of this resistance is at the same level as the high of the several



previous bars that made up the surrounding bars of the formation that was placed by our now famous single tick. There are very few similarities beyond this point, however. The highs of the surrounding bars making up this formation are considerably lower than the high of the pivotal center bar. This is especially the case with the trailing bars making up the formation, as they drop off precipitously. In fact, these trailing bars actually establish a new intraday low before the formation is completed by the closing of the third bar past the pivot bar. Obviously, in the short period of time that separates these two resistance points, considerably more selling pressure has developed creating the current downdraft in the market.

Our theory of stop placement around resistance points is based on the assumption that these levels develop as a result of significant selling pressure that is able to overwhelm any buying activity at a given chart point. The market must mount a serious attack on a point established in this fashion if it is to prove to us that a trend change worthy of causing a change in our market position has indeed surfaced.

Obviously, the selling pressure is several times greater at the second resistance point than the similar forces that existed when the first point was created. It is entirely possible in the first instance to be taken out of the market simply by random price movements. On the other hand, considerable market strength will need to be generated to cause us to exit our position in the case of the second resistance point. There is little debate as to which point you would be most comfortable using for your stop.

It is wise for the experienced trader not only to immediately recognize these important points as they are formed, but also to be able to subjectively evaluate the ultimate consequence of the utilization of each point. In this case, for the purposes of this discussion, we assumed movement of the stop by strict system rules, even though the resulting stop placement places our order dangerously in the path of random price movement.

The practical trader will be much better served by closely observing the situation surrounding resistance points as they are formed and reserving judgment as to the actual placement of orders as a result of these observations. When a point such as the first one in our current discussion surfaces, it is usually wise to pass on placing a stop at this specific point in favor of waiting a bit longer for the market to define more clearly its intention at this point in time. In the instance of the current

trade, the intelligent move would have been to leave the trailing stop at its initial point at 1,476.80, ignoring our questionable resistance point at 1,474 until the situation clears up a bit. Granted, you will certainly encounter situations where the use of these close stops will prevent losses from occurring. Had the market rocketed higher in this instance after the close stop exited the position, our lonely one-tick stop all of a sudden would look like a stroke of genius. However, most traders would prefer to place their stops from a logical sequence of events rather than relying on a random event controlling their trading destiny.

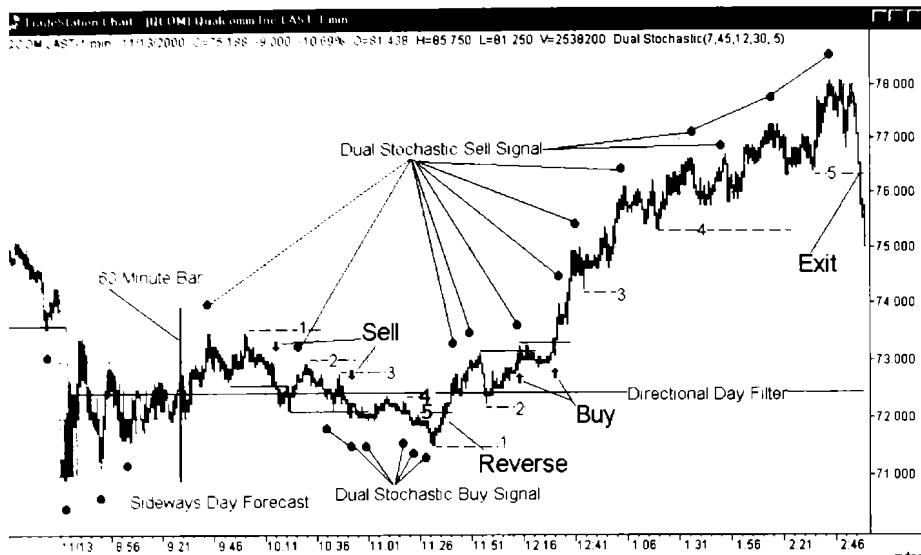
Since we are luckily still in the trade, the next market decline and minor spike upward creates the next resistance point, allowing us to move the trailing stop to 1,473.70 as designated by the dashed line labeled 3. As the market decline progresses we are able to reset our stop at number 4 and then finally to number 5 at 1,465.30, which locks in a significant profit for the trade. The next down move allows a move of the trailing stop down to 1,464.50, where the position is closed out on the next market advance as the prices climb through our stop.

Although by most practical standards it is fairly late in the day to initiate another countertrend trade, it should be noted for illustrative purposes that such a transaction is indeed possible here. Note that we are in a buy window from the series of Percent R buy signals in the area. Thus our buy stop could have been entered as a reversal stop, allowing us to remove another point from the market from the long position entered at the same 1,464.50 level. The market continued to move higher with a potential maximum profit reached at the high of the move at 1,467.50, which is certainly ample room to take our one-point profit from the trade as well as compensate once again for any entry slippage that may have occurred.

Our next trading example using the four-step process concentrates on a day in the life of Qualcomm Inc. (QCOM). This day begins as a sideways affair but puts a good rally together before the day is out (Figure 12.24).

To discuss the detail of these trades more clearly we will first examine the big picture and then take a look at each individual section on a separate graphic.

Our initial assessment of the trend of the day reveals that there is a bit more activity below the filter line than above. The close of the 60-minute bar is slightly above the filter line, leaving us with the initial conclusion that the day is at best sideways with a possible downward



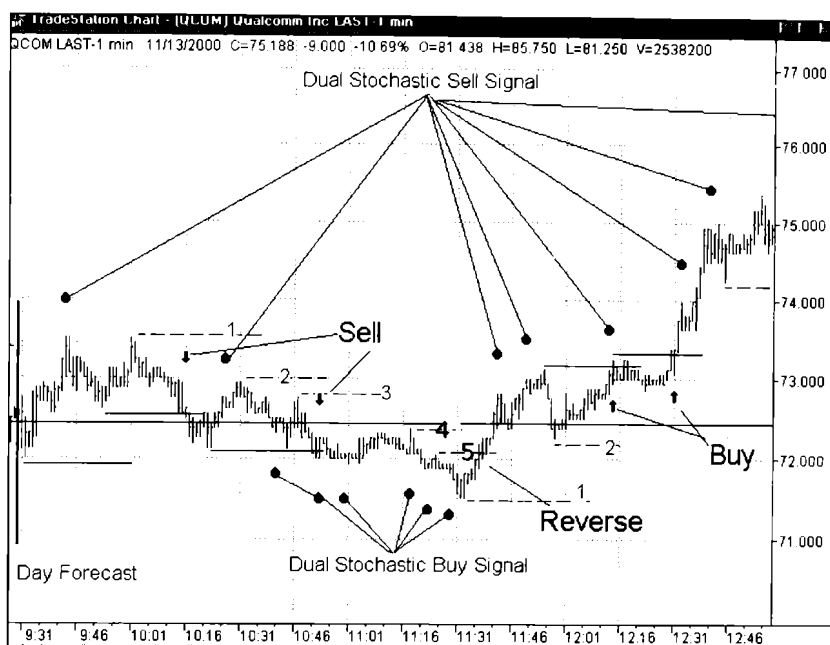
**Figure 12.24** Both a buy and a sell signal are generated on a day that begins as a sideways affair.

Chart created with TradeStation® 2000i by Omega Research, Inc.

bias. A second assessment 30 minutes later indicates a sideways day is all that can be expected. With this assessment we are now able to take trades from both the long and the short sides of the market.

As we are able to enter trades on both sides, we first will look at the sell side since it is the first window opened by the dual stochastic indicator (see Figure 12.25). Our initial selling point is pegged at the swing low posted shortly after the 60-minute bar is completed. Gaining no fill as the market trends higher for a time, our sell stop is moved up to the 72.50 area when it is made available by a Category 3 support level. Some time later the position is filled as the market trades through our stop. Our initial stop for this short position is placed first at the dashed line marked 1 on the chart. This is placed at the Category 3 resistance level closest to the actual filling of our order.

Subsequently our trailing stop is lowered to points just above successively lower-placed resistance at the dashed lines marked 2 and 3. There is also marked at this point on the chart a second selling opportunity for traders who are accustomed to adding positions as trades progress. In this instance a second short position can be added slightly above the 72 area.



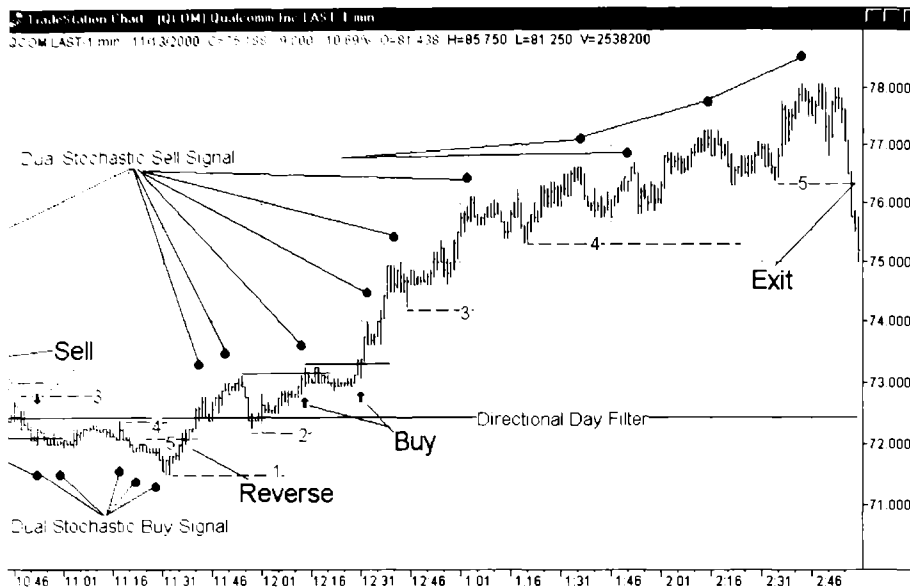
**Figure 12.25** After the initial short trade, multiple possibilities exist for entry on the long side.

Chart created with TradeStation® 2000i by Omega Research, Inc.

Our stop is then progressively lowered to lines 4 and 5 as permitted once again by respective resistance points.

Since we are now operating under a buy window from the dual stochastic indicator as marked, we have the option to reverse or simply exit the position. More aggressive traders will enter a long position as the short trade is stopped out, therefore reversing to a long position. Conservative traders may be more comfortable at this point simply exiting the short position and waiting for additional chart confirmation before entering another trade.

In Figure 12.26 the initial stop for our new long position from the reversal trade lies just below the swing low marked by Category 3 support that occurred immediately prior to the reversal. The dashed line labeled 1 marks this level. About 30 minutes later we are able to raise our trailing stop to the number 2 dashed line, which marks the support placed by a Category 3 support pattern at that point. It is shortly after this point that we have our marked two points where



**Figure 12.26** Category 3 support levels allow the movement of a trailing stop that eventually exits the trade.

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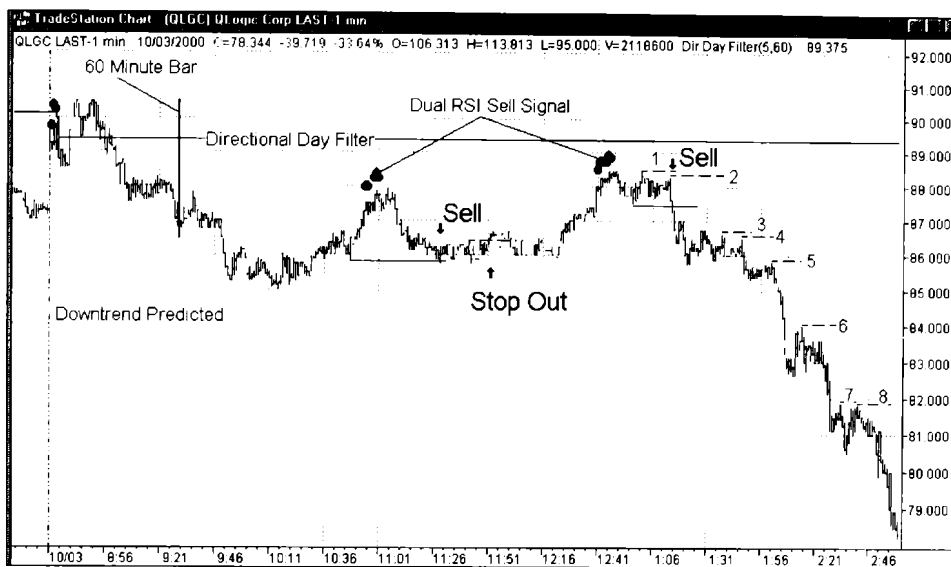
conservative traders may enter or where more aggressive traders may wish to add to their current long position.

Our stop is raised successively to points 3, 4, and 5 as allowed by our Category 3 support points until we are stopped out near the close when the market corrects downward on end-of-session profit taking.

Our next trading example, which concentrates on a chart of QLogic Corp. (QLGC), describes several important situations that must be understood for the trader to effectively trade with these technical tools (Figure 12.27).

As always, we begin our trade analysis at step one of our four-step method—to determine the major trend of the day. As we examine the chart 60 minutes into the day we note that there is predominance of market activity beneath the filter line as compared to that above. Additionally, the close of the 60-minute bar is well below the filter line and quite near the intraday low. Our conclusion is that we will expect the intraday high at this point not to be exceeded for the rest of the day while expecting that new intraday lows will be established.

As an aside, once again we see the breakout strategy discussed



**Figure 12.27** Although the first sell signal is stopped out for a small loss, the subsequent trade generates a positive outcome.

Chart created with TradeStation® 2000i by Omega Research, Inc.

earlier being quite effective in giving us a quick short entry into the market that is good for at least a \$2 to \$3 per share profit depending on the exit strategy selected. This type of price activity early in the day with a sharp, violent drop from the early intraday range certainly reinforces our expectation of a down day in this market.

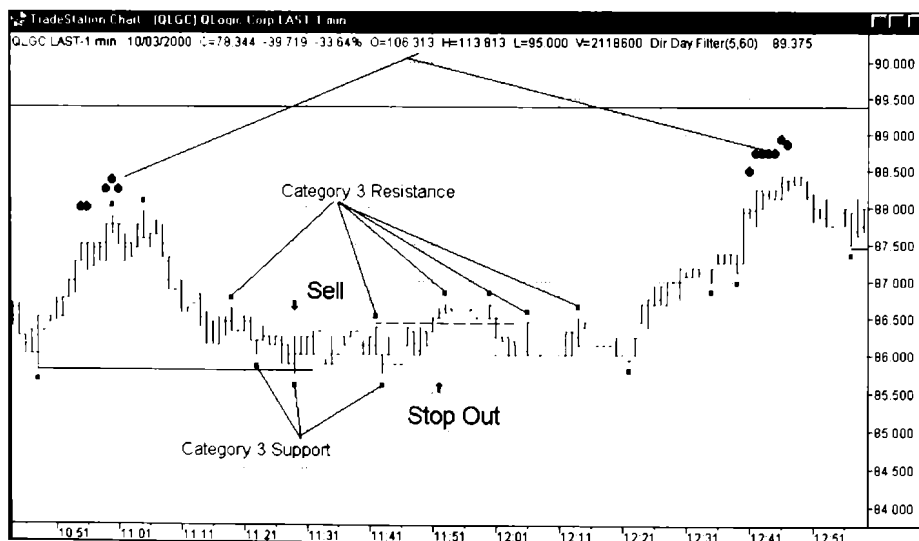
With a downtrend expected for the balance of the session we will be looking only to the sell side of the market for potential trades. Our first selling window opens as a series of dual RSI sell signals appear on the chart. This should make us once again more confident of our short trading approach on this day since for the most part the signals from dual RSI have been the most accurate. We now place our sell stop slightly below the last Category 3 support as marked on the chart.

It is at this juncture that it is necessary to point out what can be a significant problem when trading with short-term support and resistance. Note on the chart that we have placed the stop one tick below the designated support level as described earlier. The placement is a bit below the support level to avoid being placed in a trade if the market should decide to make a double bottom here. But look what happens. The market makes a new low by one tick around the 11:30 A.M.

time frame. Since the market has traded at our stop price, we now have a short position at that price—or possibly higher, as the stop order becomes a market order when it is hit by the market and can be filled at any price.

Figure 12.28 details the trade, which is stopped out for a loss. Note that following the rules as stated for exits we are soon stopped out of our short trade for a small loss as the market trades up and through the next resistance point placed again by our Category 3 formation. Although not a large loss, it is still a negative trading experience.

Retrospectively, is it a better idea to place the entry sell stop two ticks below the support area instead of one? Would three ticks lower be even better? In this case, had the stop been placed just one more tick lower we would have avoided this loss, as we would not have assumed a position in this case. This again is one of those judgment calls that must be made as a function of the trading style of the individual trader. Research into your favorite market will certainly provide valuable information as to the placement of both buy and sell stops around support and resistance areas.



**Figure 12.28** Category 3 support is responsible for the placement of the initial entry of this trade. Category 3 resistance stops the trade out with a small loss as the market searches for direction in this congestion area.

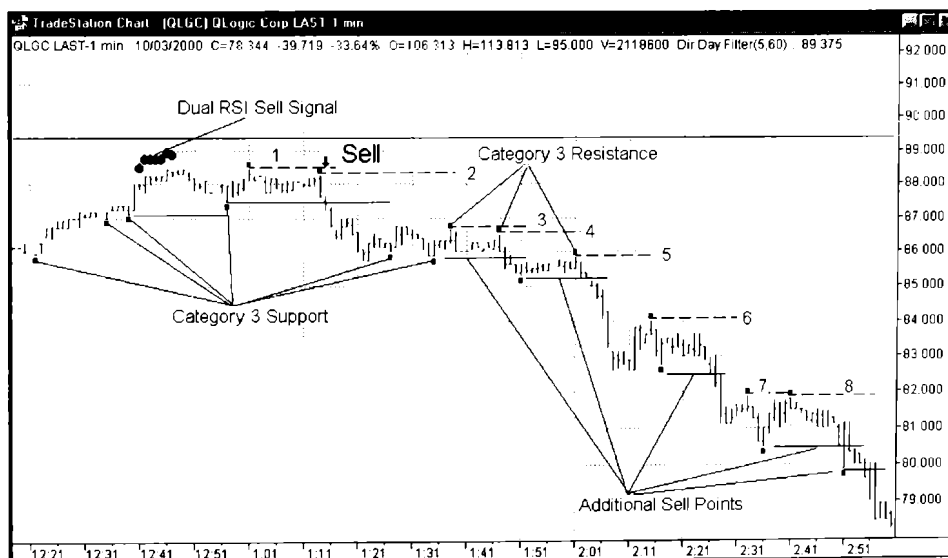
Chart created with TradeStation® 2000i by Omega Research, Inc.

Fortunately, the next trade of the day, entered under exactly the same circumstances as the losing trade just described, has a much better result (Figure 12.29).

The already open sell window is confirmed as our dual RSI indicator again gives a series of sell signals around 12:45 P.M. Our sell stop initially rested slightly above the 87 area. Several bars later another Category 3 support level allows us to replace our sell stop with a higher, potentially more profitable entry level where the position is filled during the 1:15 P.M. time frame. The initial stop point is located just above the two Category 3 resistance areas placed just before the position was established. As the market cascades lower for the remainder of the session we are able to follow the market down as successively lower resistance levels are formed behind the market. The position is exited on the close for a profit of greater than \$7 per share.

Aggressive traders looking to add to their profitable short positions are able to do so at the Category 3 support levels marked by the solid lines on the chart. Those reluctant to enter the market as a reaction to the previous losing trade are also able to enter on any of these points.

Even though the first trade of the day was closed out for a small



**Figure 12.29** The second trade of the day, entered as a result of the exact circumstances as the earlier losing trade, generates a substantial profit.

Chart created with TradeStation® 2000i by Omega Research, Inc.



loss, sticking with the same strategy allows the trader to end the day with a net gain for the trading account. Losses are an unfortunate part of trading, but the professional trader is able to realize a loss as simply part of the game and methodically place the next order as indicated by the system he or she has spent months, if not years, developing and testing. Too many traders are spooked out of the market by one of these irritating losses only to have their situations worsen by not being able to take the next trade.

On all of the trading examples shown so far in this chapter I have displayed the buy and sell signals issued by the dual stochastic, dual RSI, and dual Percent R as dots that appear on the screen when the conditions for the appropriate signals have been satisfied. I chose this approach in an attempt to simplify the discussion of the use of these trading signals. In this manner we could focus our attention on the use of these buy and sell windows in real trading conditions rather than the reinterpretation of the actual indicator plots at the bottom of the screen.

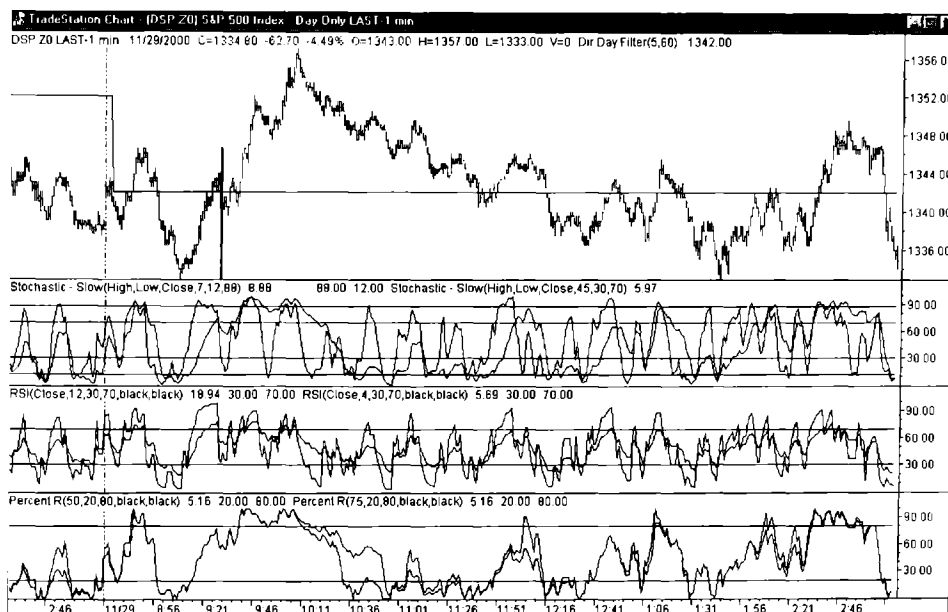
Information on obtaining the computer code necessary to plot these buy and sell windows on the screen may be found at my web site ([www.clayburg.com](http://www.clayburg.com)). Those employing Omega's TradeStation, which was used to generate the charts shown here, will be able to download and use these programs. If you are using this charting package or a similar one that allows the programming of user-defined indicators as a part of the software, I would highly encourage you to take the time to set up these tools in your system. While the interpretation of the indicator plots is quite important, it is also convenient to see the dots appear as a confirmation of the signal. These programs make the interpretation of these tools just a bit easier during an active trading session. Also, in the near future selected online packages will have these programmed indicators available as part of their analytical packages.

I strongly suggest that you always follow the actual indicator plots as a part of your trading routine. As you become more familiar with their use as described here you will soon be able to see the trades coming up several bars prior to the signal being plotted.

As will be covered in Chapter 15, these strategies are compatible with many of the online charting packages that are readily available at a very reasonable cost. Virtually all of these services make stochastic, RSI, and Percent R available as a part of their analytical packages. All these packages are therefore adaptable to the techniques we have covered in this book.

In preparation for the discussion of the use of these tools with several online services, the next section of this chapter will show several charts and trading scenarios. Instead of using our familiar dots on the charts, we will instead concentrate on the use of the indicator plots that actually generate the opening of the buy and sell windows. The experience gained by the study of the charts displayed previously in this chapter now allows us to explain trade generation from the actual indicators much as will be the case when using the various online charting packages.

The one-minute chart of the December 2000 S&P 500 futures contract (Figure 12.30) has three separate subgraphs placed below the familiar price chart. These subgraphs individually display both the faster and slower settings for each of the oscillator indicators we use in the trading scenarios set forth in this book. I will begin the explanations of these complex charts first with this basic version and add several interpretations as we progress.



**Figure 12.30** The actual tracings of the separate indicator sensitivities are detailed on each subgraph. Most online charting packages can be configured to plot our three oscillators in a fashion similar to what is shown here.

Chart created with TradeStation® 2000i by Omega Research, Inc.

The familiar Directional Day Filter is plotted over the actual price bars on the top graph.

The first subgraph contains the plots of the two stochastic settings that are used in the dual stochastic indicator with which you are by now familiar. The more active plotted line is created by the faster 7-bar average while the slower moving, less active line is generated by the 45-bar stochastic setting. The two top lines designate the overbought thresholds for each stochastic setting, with the top line placed at 90 for the fast average and the next line down placed at 70, which is the threshold for the slower average. The bottom two lines are the oversold lines at 30 and 10 for the slower and faster averages, respectively.

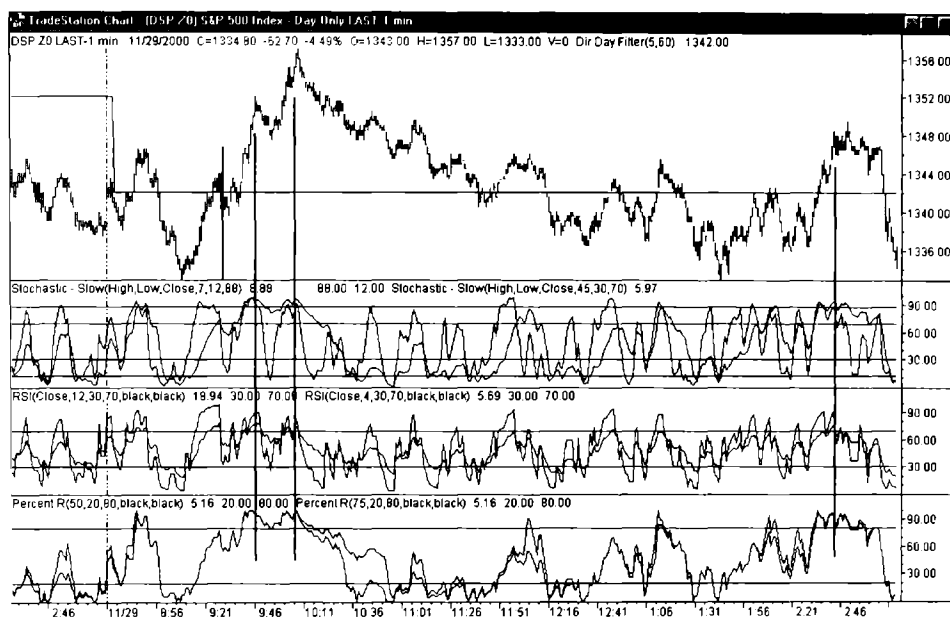
The next subgraph is used for our two RSI settings, in this instance set at 12 bars for the slow setting and 4 bars for the fast average. In this case the indicator is set to use identical thresholds for both the slow and fast averages. The overbought line is at 70 while the oversold threshold rests at 30.

Finally, the lowest subgraph displays the plots for both settings of the Percent R oscillator. In this case we are using a 50-bar setting for the fast average and a 75-bar average for the slow setting. The overbought threshold is set at 80 percent for both the fast and slow averages while the oversold line for both rests at 20 percent for this S&P application.

As mentioned many times previously, these indicator settings should be adjusted to fit the individual trading style of each user. Appropriate settings are used for various other stock issues and commodity contracts.

Study this chart carefully, attempting to isolate selling opportunities for entry into the downtrend. These areas are isolated in Figure 12.31. The dark vertical lines on the chart designate the areas where all three dual oscillator indicators indicate prime selling opportunities. Readers are encouraged to review the rules for the opening of buying and selling windows in previous chapters in order to fully understand the interaction of all six plots on this chart as signals are plotted.

Figure 12.32 details each of our three oscillator indicators in their dual setting plots. Dots as labeled on the top graph indicate the exact location of actual sell signals as the indicator plots below generate them. Study this chart closely to reinforce your understanding of the various oscillator plots as they interact to generate trading signals.



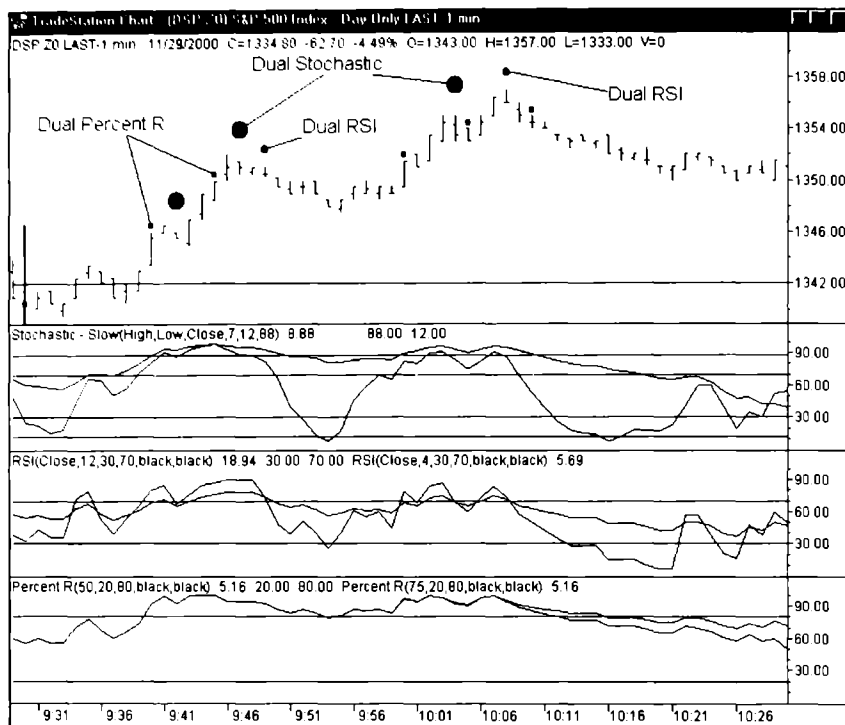
**Figure 12.31** The two dark vertical lines spanning all graphs indicate prime selling windows as designated by all three dual oscillator indicators.

Chart created with TradeStation® 2000i by Omega Research, Inc.

Figure 12.33 is a duplication of the first in this series (Figure 12.30) with appropriate dots added to the price graph to further facilitate the study of the underlying plots.

Observing this much information on a historical chart such as this one certainly can be a bit overwhelming. However, consider that you are looking at a chart with a bar for each minute of the day covering an entire trading session. When actually trading, you will be focusing your attention on only a few bars at a time when making decisions as to actual trade entries and exits. It will not be necessary for you to interpret a chart as cluttered as this one, which is displayed as such for demonstration purposes.

In Chapter 14 I'll also describe how the use of a computerized trading system can be useful in the generation of trades from the sequences of indicator data generated from the routines we have described.

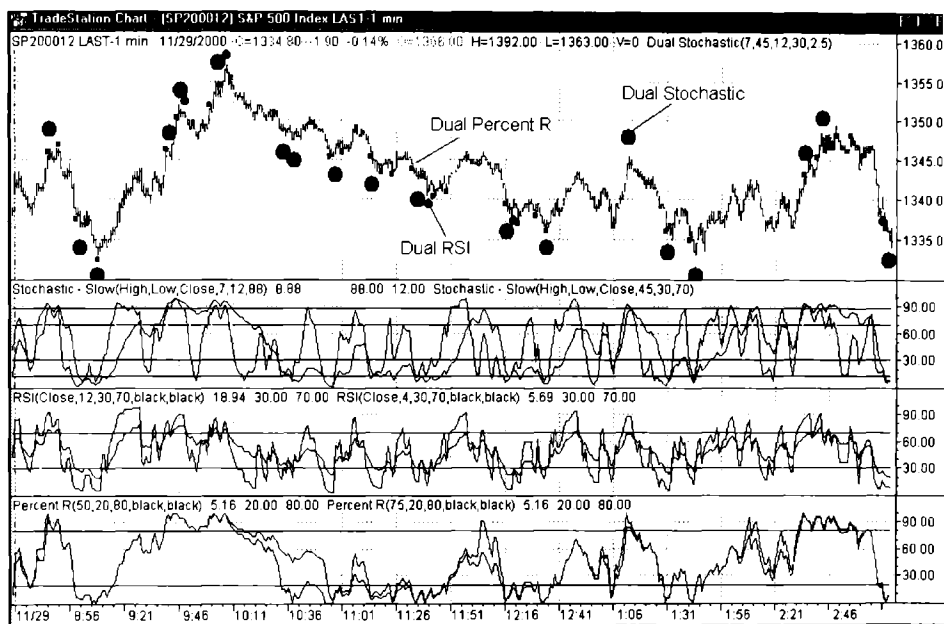


**Figure 12.32** This expansion of a portion of Figure 12.31 places the familiar dots on the charts where the signals are generated by the actual oscillator plots below. These sell signals correspond to the two heavy vertical lines that are opening sell windows on Figure 12.31.

Chart created with TradeStation® 2000i by Omega Research, Inc.

## TRADE ORGANIZATION

To efficiently generate the necessary information to assemble each trade there is admittedly a considerable amount of information to process. It is first necessary to determine the major trend of the day. Then you must assess the positions of effectively six indicator settings, as we are utilizing two settings of three separate oscillators to identify exhausted corrections. Finally the appropriate buy or sell stop must be determined before the trade can be placed. Following the establishment of a position it is then necessary to record the fill price and actively



**Figure 12.33** Trade signals generated are displayed with both the familiar dots used on previous charts as well as the actual oscillator plots.

Chart created with TradeStation® 2000i by Omega Research, Inc.

track successive changes in support or resistance, since these numbers are needed to place accurate trailing stops.

To maintain a reasonable amount of order to this process I suggest you seriously consider a trader's checklist similar to the one shown in Figure 12.34. I have created the checklist in an Excel spreadsheet simply for ease of presentation. Although I find this format useful, other formats could obviously be created.

The first column is used to label each trade with its own identification number. The next column records the major trend of the day as described by the Directional Day Filter (DDF) using a +, -, or 0 for an uptrend, downtrend, or a trendless day, respectively.

The next columns are used to register each oscillator signal as it appears on the chart. P1 is used to identify a slow Percent R indication for a trade, while the P2 column confirms a Percent R indication for the trade when the faster setting of the indicator gives its signal. The next four columns are used to track first the slow and then the fast setting of each oscillator as they occur.

	T#	DDF	P1	P2	S1	S2	R1	R2	Support	Resistance	Ticket #	Filled	Offset
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													

**Figure 12.34** A simple trader's checklist will assist the trader in processing the information necessary to generate a high-probability trade.

When columns C through H are completed, then one immediately examines the chart for an appropriate support or resistance point to be used to place a buy or sell stop. This number is recorded under the appropriate column, either I or J.

As the market continues to trade it is entirely possible that a new support or resistance number will be generated such that you will need to make an adjustment in the placement of the appropriate buy or sell stop. Although it is possible to simply replace the price level representing the old stop level with the new one, I would suggest that you simply use the next lower row to record the new point. This is extremely helpful when you go back to study your trades at the end of the day. If several entries and exits are made, which is often the case with this strategy, it is most helpful to have these support and resistance numbers recorded so that you may easily retrace all of your steps for each trade as they actually occurred. The movement of these stops is probably the hardest thing to re-create at the end of the day when you critique your activities of the previous session.

These same support and resistance columns are used to record both the initial placement of a trailing stop and any changes that may be made as the trade progresses and you move this stop to protect your position prior to liquidation.

Also, you may wish to use the next column to record any order numbers, ticket numbers, and so forth associated with each order placed or each cancel and replace order that occurs as things progress. Recording this information can be very valuable should it

become necessary to correct any errors made during order placement and fill reports.

The final columns are used to record actual fill and offset prices when you receive them.

## CHAPTER REVIEW

1. Combining the Directional Day Filter with dual settings of the popular oscillator indicators is an effective tool for the identification of high-probability trades in the direction of the major trend of the day.
2. Market-defined support and resistance is useful in the actual placement of buy and sell stops.
3. The same support and resistance tools can be used effectively to establish levels for trailing stops to protect a position and eventually exit the market.
4. A structured four-step method of trade generation can be an effective method for creating high-probability trading signals.
5. A simple, effective trader's checklist is a useful tool to aid in the organization of each trade.



# 13

## **DIRECTIONAL DAY FILTER BREAKOUT SYSTEM**

In Chapter 10 covering the Directional Day Filter I briefly mentioned a breakout system that makes use of this simple tool for day trading. In this chapter I will cover the design, customization, and implementation of this system in detail.

Although this approach does use the Directional Day Filter as a setup routine, the system we are going to build here is considered to be a completely different trading method than the one developed previously using the four-step approach to enter in the direction of the major trade of the day. Obviously the two systems can be used together. Just be aware that the two approaches are quite different in their methods.

As discussed earlier, the system is a basic system that trades the breakout of the early intraday range as defined by the Directional Day Filter. If the filter is predicting an uptrend for the rest of the day, the system places a buy stop slightly above the intraday range. If the forecast is for a downtrend, the system places a sell stop slightly below the intraday range.

Although the basic system is about as simple as they come, the effective implementation of this idea in actual trading becomes a bit

more complicated. As with any system or trade, you must decide when and where to enter and when and where to exit. The fine-tuning of these critical decisions will ultimately determine the overall profitability of the system.

There are four basic parameters that must be addressed for this to be an effective system. They are:

1. Time of the breakout.
2. Exit strategy.
3. Stop placement.
4. Stock selection.

In Chapter 3, "People, Prices, Personalities, and Probabilities," there was a brief discussion concerning the different manner in which each particular security or commodity contract responds to various trading parameters. Understanding the response of your favorite stock will be absolutely essential to your success with this system. Each issue responds in its own manner to any system, but particularly to this one. There is significant variance in the time of the breakout and the proper exit strategy among the many issues I have tested with various versions of this breakout system. Later in this chapter there are a series of bar graphs displayed that graphically point out the wide variances of stock issues to selected parameters of this system.

As a general rule, the higher-priced, more volatile issues will respond most favorably to this system. Consider that we are, with this system, attempting to capitalize on quick intraday price moves. The item being traded must exhibit significant price swings to generate the type of movements we are looking for. The quieter, lower-priced issues that are usually confined to relatively narrow, less volatile ranges will not exhibit the types of price changes that are necessary for our system to make profitable entries and exits.

Even within the more volatile, higher-priced stock sectors there will be significant differences among issues that affect the placement of entry and exit stops as well as the determination of profit targets.

I will present as many graphs and statistical tables in this section as is practical in an attempt to present readers with a fully functional, basic day trading system that can be implemented with the basic information you find here. This approach will also fully apprise readers of

the absolute necessity of fully understanding the response of every issue to be traded using this strategy. Although I will present statistical tables and graphs on many of the popularly traded issues, it is not practical to cover every issue that could be effectively traded using this technique. Readers carefully walking through the creation of an effective setup for trading several issues in this chapter will gain the experience necessary to develop a similar strategy for an issue or commodity contract of their choice.

I will first demonstrate a method by which anyone could develop such a system without the aid of sophisticated charting or trading software. I will create the system using basic charting observations and a logical step-by-step method. Keep in mind as we walk through this process that although a computerized system is quite helpful in developing such a trading strategy it is entirely possible to do so with a pencil, a lot of paper, and good, black coffee. Chapter 14 will cover the basics of automated system development and testing.

I have selected charts of QLogic Corp. (QLGC) for the security to be used to demonstrate the adaptation of this system. This issue is actively traded, with an average daily volume of 2.65 million shares traded over the last six months of 2000. Its volatility is well suited to this system, its range has been fairly consistent over the testing period, and there have been no recent splits to skew the data. Obviously this is not a recommendation for readers to buy or sell this issue. This is simply the issue I have chosen to demonstrate the process of developing a trading system from the Directional Day Filter data. There are multiple issues that can be effectively traded using this strategy.

## STEP ONE: SET BREAKOUT TIME

The first critical issue to address when implementing this system is the timing of the critical breakout. We must determine with the greatest degree of accuracy possible the time of day when the breakout strategy is to be implemented to be the most effective.

The first step is to analyze as much data as possible, testing each practical time frame for the percentage of days during which, after this time frame, a breakout occurred on only one side of the current intraday range.

Table 13.1 is representative of only a small portion of the data generated to make our initial determinations concerning a proper breakout time. Although it is possible using simple chart observation to generate this data, I have chosen to write a rather simple program on the Omega TradeStation platform to do so.

The delay column represents the time at which the data on this line was generated, in this case 60 minutes after the open of the trading session, or 10:30 A.M. eastern time. The next column tells us that 228 days were tested to generate the data. Of these 228 days, 162 had breakouts of only one side of the intraday range recorded 60 minutes into the session. This represents 71.05 percent of the days tested. Of these 162 days on which a one-sided breakout occurred, 73 breakouts occurred on the high side of the intraday range while 89 of these days had breakouts below the intraday range. Additionally, there were 32 days, or 14.04 percent, on which there were no breakouts of this early range. Finally, on 34 days, or 14.91 percent of the 228 days representing the sample, the market broke out of both sides of the intraday range calculated at the 60-minute point. By examining a table that contains this data for each tested time frame we are able to determine the best time for our breakout strategy.

So, how do we know that the 60-minute time frame is the primary breakout point for QLogic? At this point, we don't. That's just the easy number I have used throughout the book to demonstrate the use of the Directional Day Filter. As you will see later, this prime time will vary between issues selected. To get a good handle on the best time to set our buy or sell stops I have run the program just mentioned against QLogic from January 1, 2000, through December 1, 2000. I have generated numbers for each five-minute period starting at 15 minutes and running to 300 minutes after the open. This is the equivalent of testing each breakout strategy as it would have developed for each five-minute period beginning at 9:45 A.M. and ending at 3:30 P.M. eastern time. Table 13.2 reflects the results of testing all 58 breakout times.

**Table 13.1** Sample Data from QLGC at 60-Minute Delay Point

Symbol	Delay	Days	One-Sided		Highs	Lows	No		Double	
			Breakout	Percent			Breakout	Percent	Breakout	Percent
QLGC	60	228	162	71.05	73	89	32	14.04	34	14.91

**Table 13.2** Complete Data Sequence for QLGC

Symbol	Delay	Days	One-Sided		Highs	Lows	No		Double	Percent
			Breakout	Percent			Breakout	Percent		
QLGC	15	228	123	53.95	59	64	2	0.88	103	45.18
QLGC	20	228	133	58.33	65	68	6	2.63	89	39.04
QLGC	25	228	141	61.84	70	71	8	3.51	79	34.65
QLGC	30	228	149	65.35	71	78	13	5.70	66	28.95
QLGC	35	228	151	66.23	72	79	15	6.58	62	27.19
QLGC	40	228	159	69.74	73	86	19	8.33	50	21.93
QLGC	45	228	161	70.61	74	87	22	9.65	45	19.74
QLGC	50	228	162	71.05	75	87	25	10.96	41	17.98
QLGC	55	228	163	71.49	77	86	28	12.28	37	16.23
QLGC	60	228	162	71.05	73	89	32	14.04	34	14.91
QLGC	65	228	159	69.74	71	88	36	15.79	33	14.47
QLGC	70	228	158	69.30	72	86	40	17.54	30	13.16
QLGC	75	228	157	68.86	71	86	43	18.86	28	12.28
QLGC	80	228	158	69.30	71	87	43	18.86	27	11.84
QLGC	85	228	160	70.18	74	86	44	19.30	24	10.53
QLGC	90	228	162	71.05	76	86	45	19.74	21	9.21
QLGC	95	228	163	71.49	77	86	47	20.61	18	7.89
QLGC	100	228	163	71.49	77	86	48	21.05	17	7.46
QLGC	105	228	159	69.74	74	85	51	22.37	18	7.89
QLGC	110	228	156	68.42	72	84	54	23.68	18	7.89
QLGC	115	228	154	67.54	71	83	56	24.56	18	7.89
QLGC	120	228	156	68.42	72	84	56	24.56	16	7.02
QLGC	125	228	156	68.42	71	85	58	25.44	14	6.14
QLGC	130	228	155	67.98	71	84	60	26.32	13	5.70
QLGC	135	228	156	68.42	72	84	60	26.32	12	5.26
QLGC	140	228	156	68.42	72	84	60	26.32	12	5.26
QLGC	145	228	156	68.42	72	84	60	26.32	12	5.26
QLGC	150	228	156	68.42	71	85	61	26.75	11	4.82
QLGC	155	228	155	67.98	71	84	62	27.19	11	4.82
QLGC	160	228	155	67.98	71	84	62	27.19	11	4.82
QLGC	165	228	153	67.11	70	83	64	28.07	11	4.82
QLGC	170	228	150	65.79	69	81	67	29.39	11	4.82
QLGC	175	228	148	64.91	68	80	69	30.26	11	4.82
QLGC	180	228	151	66.23	70	81	68	29.82	9	3.95
QLGC	185	228	149	65.35	69	80	71	31.14	8	3.51
QLGC	190	228	150	65.79	69	81	71	31.14	7	3.07
QLGC	195	228	150	65.79	69	81	71	31.14	7	3.07
QLGC	200	228	149	65.35	68	81	72	31.58	7	3.07

*(Continued)*

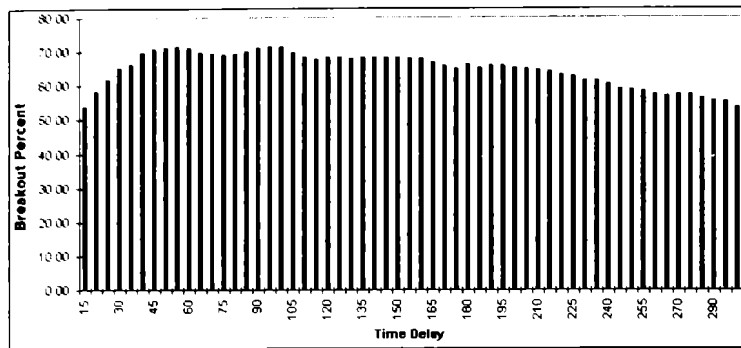
Table 13.2 (Continued)

Symbol	Delay	Days	One-Sided		Highs	Lows	No		Double	
			Breakout	Percent			Breakout	Percent	Breakout	Percent
QLGC	205	228	148	64.91	69	79	74	32.46	6	2.63
QLGC	210	228	147	64.47	68	79	75	32.89	6	2.63
QLGC	215	228	146	64.04	68	78	76	33.33	6	2.63
QLGC	220	228	144	63.16	66	78	78	34.21	6	2.63
QLGC	225	228	143	62.72	66	77	79	34.65	6	2.63
QLGC	230	228	140	61.40	66	74	82	35.96	6	2.63
QLGC	235	228	140	61.40	65	75	84	36.84	4	1.75
QLGC	240	228	138	60.53	63	75	86	37.72	4	1.75
QLGC	245	228	135	59.21	63	72	89	39.04	4	1.75
QLGC	250	228	134	58.77	62	72	91	39.91	3	1.32
QLGC	255	228	133	58.33	62	71	92	40.35	3	1.32
QLGC	260	228	131	57.46	61	70	94	41.23	3	1.32
QLGC	265	228	130	57.02	60	70	96	42.11	2	0.88
QLGC	270	228	131	57.46	61	70	97	42.54	0	0.00
QLGC	275	228	131	57.46	61	70	97	42.54	0	0.00
QLGC	285	228	128	56.14	59	69	100	43.86	0	0.00
QLGC	290	228	127	55.70	59	68	101	44.30	0	0.00
QLGC	295	228	126	55.26	58	68	102	44.74	0	0.00
QLGC	300	228	122	53.51	56	66	106	46.49	0	0.00

With the amount of data generated by such a process it is often helpful to graph the results to enable more efficient interpretation of the results. Since at this stage we are concentrating on the selection of the most profitable time to execute our breakout strategy, I have plotted the percentage of one-sided breakouts that occurred across all time frames tested.

From Figure 13.1 it is obvious that any time frame between 55 and 110 minutes after the open will work well for our system. The numbers tell us that on about 70 percent of the days tested, QLogic establishes its high or low for the entire day during roughly the first one and a half hours of trading. Additionally, this issue breaks out of its early range only on one side of the early intraday range on these days.

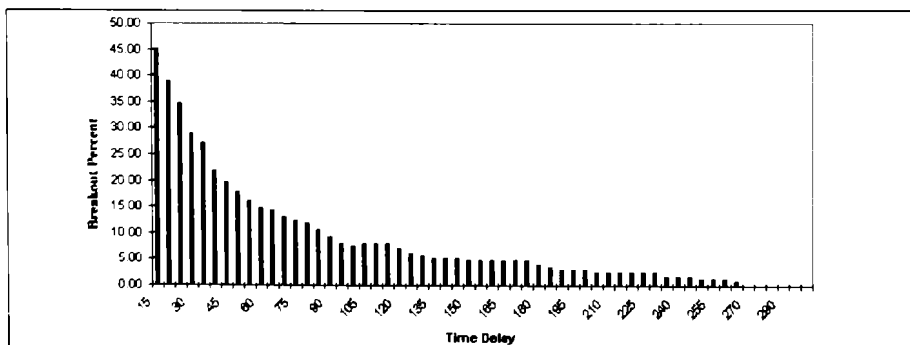
We have now established, based on the information in Figure 13.1, that we should enter the market on our breakout scenario sometime during the defined time frame. It is now necessary to time our entry in such a fashion as to limit our possibility of loss to an accept-



**Figure 13.1** Graphing the breakout percentages from Table 13.2 reveals a rather wide range of breakout times that will be useful in setting the parameters for our system.

able level. Since the possibility of a loss is the greatest in our scenario when the market is successful in breaking out of both sides of the early range, we should therefore choose a breakout time when a double breakout is less likely. The next chart graphs the double breakout percentages from the data table against the tested time frames.

Examining Figure 13.2 during these same time frames, the percentage of double breakouts is rather insignificant in comparison with the values running between 7.5 percent and 16.5 percent. From



**Figure 13.2** Percent of days exhibiting double breakouts is plotted as a function of the time of the breakout.

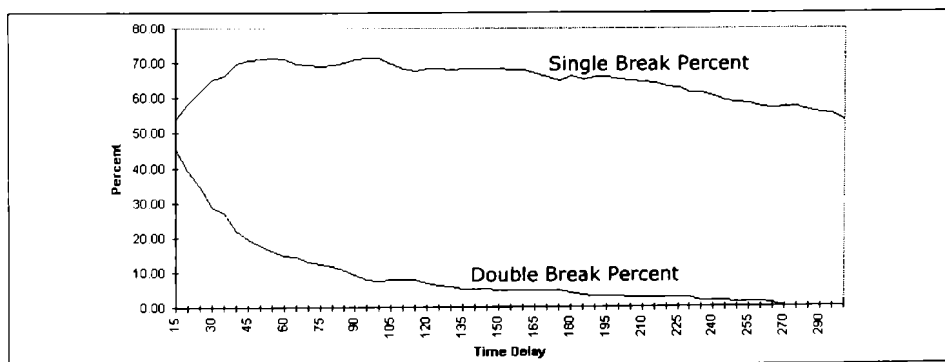
Figure 13.1, our timing parameters should produce breakout trades on only one side of the intraday range on around 70 percent of the days. Also, from Figure 13.2, the chances of making a breakout on both sides of the early range and placing us in a stop loss position should only happen on less than 17 percent of the days traded.

To compare the percentages of days showing a single breakout to those showing a double breakout, I have plotted both occurrences in Figure 13.3.

Logically, the point at which the spread between our two plots on the chart is the widest will allow us, when using the matching delay time, to enter with the highest average percentage change of experiencing only a one-sided breakout and the lowest average chance of getting caught in a double breakout day and possibly being placed into a losing situation. Placing our breakout time at 90 minutes after the open of the market maximizes the potential for a successful one-sided breakout while minimizing chances for a double breakout.

## STEP 2: DETERMINE EXIT STRATEGY

This brings us to step two of the system development process. No system is complete without an exit strategy, both to take profits and to protect the system against significant losses. With this in mind, let's



**Figure 13.3** Timing our trade at 90 minutes after the open of the market in QLGC maximizes the possibility of a trade with a single-sided breakout while minimizing the chances of a double-sided breakout.



now look at additional numbers generated by the same program that gave us the figures quantifying the various breakout scenarios.

Since we are trading a breakout strategy, and assuming initially that we will be using a set target for our exit, it would be helpful to have an idea of how far the breakouts usually go at each breakout time. With this information we will have a better handle on which breakout time is the most profitable. We can also find an appropriate target level for trades, either long or short, that can be taken at each breakout time. In essence, the following study will impact both the entry and exit routines as we wish to enter at the most profitable times and exit with the highest target possible. Table 13.3 lists that information for QLogic.

To create the information in the table, our statistical program measures, on each day where there is only a single breakout, the maximum amount of profit that could have been realized had one been fortunate enough to close out the position at the perfect instant. In the case of a breakout on the upper side of the early intraday range, the program measures the dollars per share that could have been realized if one had purchased the breakout without any slippage and then sold the position at the exact high of the day. For a short position the program in a similar method measures the amount of profit that would have been possible selling the breakout and closing the position at the very low of the day.

Obviously, when we are trading in real time, only very occasionally will we be fortunate enough to sell the very high of the day or buy the very low of the day to exit a trade. These calculations are obviously done in retrospect on historical data and must be viewed in that light. These potential profits represent the absolute best that the system could have done on each breakout trade. While we will never expect our system to perform this admirably, these calculations do indeed give us an appreciation of the potential profitability of each given breakout scenario. It naturally follows that our profit potential will be greater if we consistently trade the breakout times that demonstrate the greatest gains on a historical basis.

When selecting a profit target always keep in mind that these numbers represent the best possible result for the system at each timing level. We cannot expect our system to do this well. Be sure to set any target levels accordingly.

Looking once again at Table 13.3, note how the potential prof-

**Table 13.3** Average Objectives for Each Breakout Period

Symbol	Delay	Average High Maximum	Average Low Maximum
QLGC	15	6.53	7.19
QLGC	20	5.98	6.69
QLGC	25	5.70	6.23
QLGC	30	5.62	5.92
QLGC	35	5.23	5.69
QLGC	40	4.91	5.30
QLGC	45	4.57	5.44
QLGC	50	4.58	5.39
QLGC	55	4.41	5.36
QLGC	60	4.43	5.17
QLGC	65	4.29	5.12
QLGC	70	4.20	5.04
QLGC	75	4.16	4.98
QLGC	80	4.01	4.76
QLGC	85	3.74	4.63
QLGC	90	3.72	4.40
QLGC	95	3.78	4.40
QLGC	100	3.63	4.30
QLGC	105	3.69	4.17
QLGC	110	3.58	4.19
QLGC	115	3.59	4.19
QLGC	120	3.52	4.14
QLGC	125	3.53	4.15

itability of the system decreases steadily as we go further into the day. Selecting a proper time for trading the breakout of the Directional Day Filter for our security now becomes a matter of trade-offs between the percentage of days during which a successful breakout occurs versus potential profitability versus possibility of a stop-out in the case of a double breakout. It is in the sorting of these possibilities that once again the style and risk-carrying ability of the individual trader comes into play; each user defines this particular strategy according to his or her individual preferences.

### STEP THREE: SET STOP PROTECTION

As always, we must always carry stop protection of some nature on all trades. My preference, as detailed extensively earlier, is to implement a trailing stop placement governed by the appearance of market-generated support and resistance as detailed in several instances in this book.

### STEP FOUR: SELECT STOCK

Near the end of this book you will find an appendix containing data for a number of popularly traded stock issues. These numbers are generated by the same program that created the tables we have used to build the system. This data is presented both to demonstrate the manner in which different securities respond to the breakout scenario and to give you information from which you may construct your own trading scenario.

I have constructed a series of charts that describe the response of a portfolio of 80 stock issues to the aforementioned breakout scenario. This list is compiled from issues on which I have been asked to do analyses by various clients, and therefore the stocks are quite randomly chosen. The 80 stocks included in the test portfolio are listed in Table 13.4.

Figure 13.4 graphs the response of the entire database to the optimal breakout time. The percentages plotted on the y-axis reflect the percent of days tested that had breakouts only on one side of the early range. Generally, the most profitable times run from 65 to 95 minutes after the open.

We can gain considerable valuable trading information from the graph.

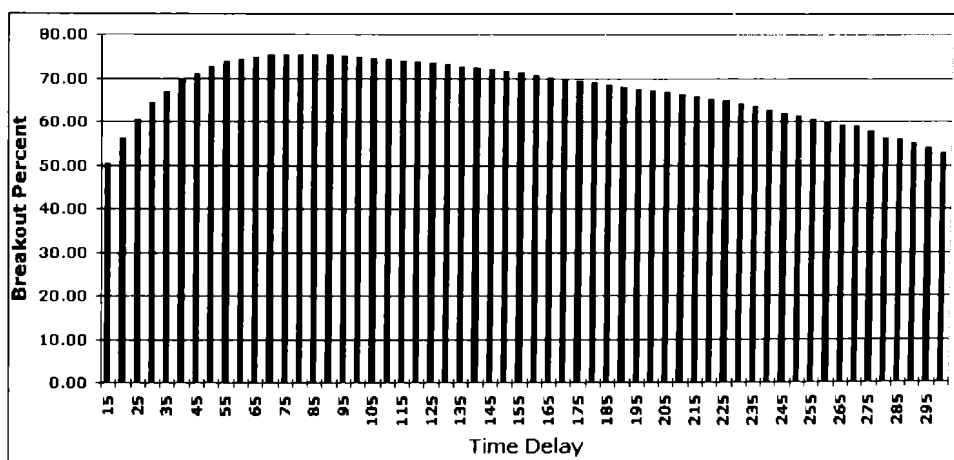
First, you can see that for the entire 80-stock database that the high or low of the day was established on 75 percent of the days tested in the first one and a half hours of trading.

Furthermore, we also can establish that on each of these days there was at least one new high or one new low made on the opposite side of the established high or low.

We can also state that the Directional Day Filter was accurate in its prediction of the direction of the one-sided breakout with an accuracy approaching 75 percent.

**Table 13.4** Test Portfolio

A	BRCM	HON	NXTL
AA	C	HWP	PMCS
ADBE	CHKP	IBM	PSIX
ADI	CMVT	IMNX	QCOM
AES	COST	INKT	QLGC
AFFX	CPN	ITWO	RMBS
AIG	CSCO	JBL	SCI
ALA	CTXS	JDSU	SEBL
ALTR	DCLK	JNJ	SUNW
AMAT	DD	LEH	T
AMD	DISH	LU	TER
AMGN	DNA	LVL	TERN
AMZN	EBAY	LXK	TMX
AUD	EMC	MEDI	TXN
AXP	EXDS	MLNM	UK
AZA	FNM	MMM	UNH
BBY	GE	MU	VIGN
BGEN	GLW	NKE	VOD
BJS	HD	NT	VTSS
BRCM	HGSI	NTAP	YHOO



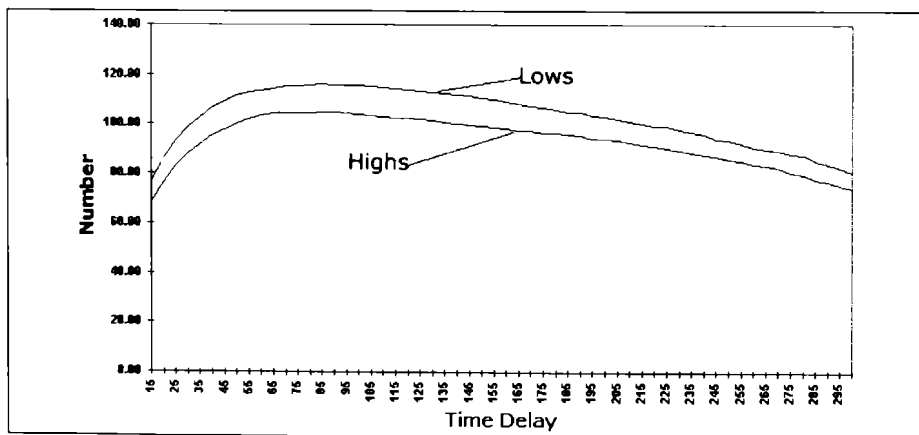
**Figure 13.4** Graphing test results verifies that the issues included in the sample placed their high or low for the day within 90 minutes of the market open on 75 percent of the days tested.

Now let's look at the profit potentials for the entire database for both the long and the short trades generated by the breakout strategy (Figure 13.5).

This graph details the average number of high and low breakouts that occurred across the entire database for the entire testing period for each breakout time frame tested.

Closely observing this graph, it is immediately obvious that there were more trades generated by our breakout system when trading the short side of the market. Close observation of the Data Appendix will also reveal that the profit potential during this time frame was greater for the trades generated on the short side. While this revelation is certainly due in part to the negative situation of the Nasdaq market during the testing period, it has been my observation that the short side is usually more productive regardless of the market posture in general. We need only to turn once again to market psychology for an explanation of why this is true.

Most people, when trading securities in particular, do so mostly from the buy side of the market. We all like to be long. As a consequence, especially in the case of nervous, inexperienced investors, a sharp down move can create a general market panic as traders bail out of their positions in fear of substantial losses. For this reason the



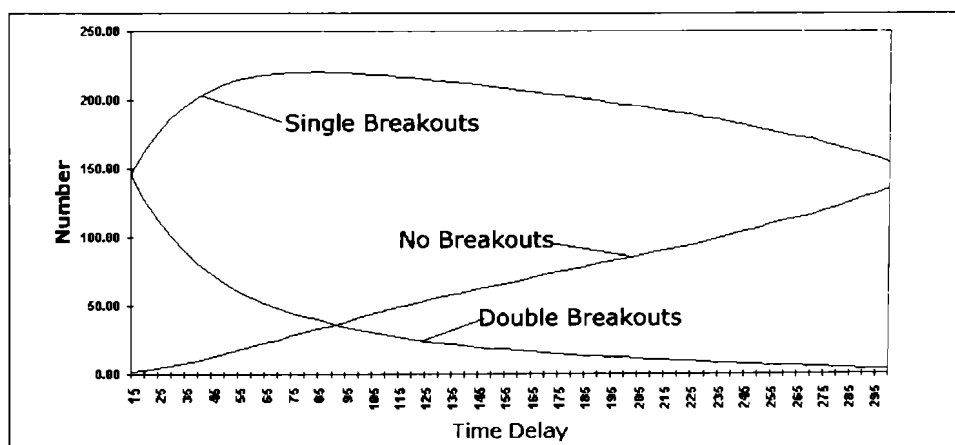
**Figure 13.5** While there is slightly more profit potential for the short side during the test period, one must consider the overall negative bias of the market during the test period before drawing any long-term conclusions.

market movements that accompany a downside breakout can frequently be violent and nasty, often driving the market lower than normal fundamentals would dictate, at least for the moment. Even though the market soon realizes this fact and usually recovers from this overbought condition, there still remains on the chart of this activity a sudden spike to the downside. Many of these days will fully recover, often actually finishing with net gains for the day.

The point is that, even though we see higher numbers as potential profits for the short side of our breakout strategy, this doesn't necessarily mean that this particular security was in the tank all day. Many of these potential profits are the result of days that show a significant spike down as the intraday range is broken on the down side and there is a price recovery later. With all of the above in mind, one should always at least consider either taking profit on your short trades when one of these spikes shows up, or at least move the trailing stop a bit closer to the market.

Figure 13.6 plots the number of days during which there was a single, a double, or no breakout for each time frame tested, again for the entire database.

At the 15-minute time frame, one would expect very few days to have established either side of the eventual daily range at this very



**Figure 13.6** The prime time for our breakout trade occurs when the gap between the single breakout plot and the double breakout line is at its widest. This occurs as the no breakout line crosses the double breakout line.

early time in the session. Hence, you will notice the “no breakout” line on the graph, which reports the number of days on which both the high and low were established at each respective time frame, is very nearly zero as the graph begins. As you would expect, the line rises rather regularly as the day progresses and the daily range widens. As the range widens so does the likelihood of the boundaries of the current range being the high or low of the day when all is said and done for the session, thus the increasing number of days at each time frame where no breakouts occur.

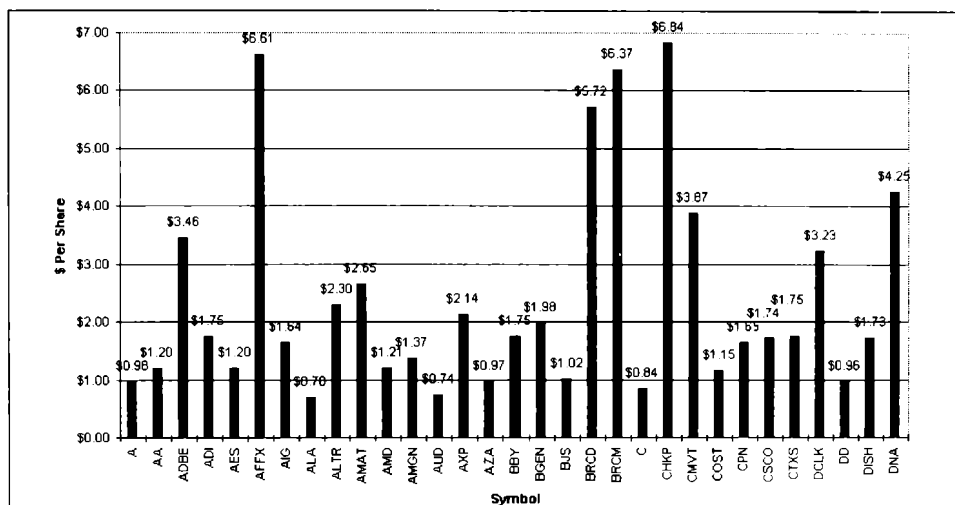
The reverse is true for days experiencing double breakouts. Since the intraday range at the early breakout times is relatively narrow when compared to the eventual final daily range, one would expect a greater number of these days to show breakouts on both sides of the range for the early periods. As the day progresses and the intraday range widens, fewer and fewer time frames are expected to show a break of both sides of the range.

The line labeled “single breakouts” is the same representation as seen on the bar graph earlier in this chapter (Figure 13.4) that shows the number of days for each time period that have established either their high or low at that point.

Also, as one would expect, the number of one-sided breakouts peaks as the lines plotting the double breakouts and zero breakouts cross each other. If nothing else, this chart, taken from actual price charts of 80 stock issues over an 11-month period, is of interest as it validates our earlier theories concerning early range breakouts and the likelihood of one side of the daily range being established rather early in the day.

Before you get too comfortable with these representations from the entire database, don't forget that these graphs are created from actual chart-generated statistics from the entire 80-issue database. These numbers are averages of all the issues tested. The point is that they are *averages*. As mentioned on multiple occasions, each issue responds differently to any technical analysis scenario, including this system. Figure 13.7 represents the varying responses of selected issues to a single system parameter.

This graph represents the first 31 issues in the database, chosen in alphabetical order, as they respond to the system as measured by the average profit potential of the long breakout at the 60-minute time frame. As you can see, even in this relatively small sample, the



**Figure 13.7** Response of selected issues to the high breakout potential at the 60-minute breakout time.

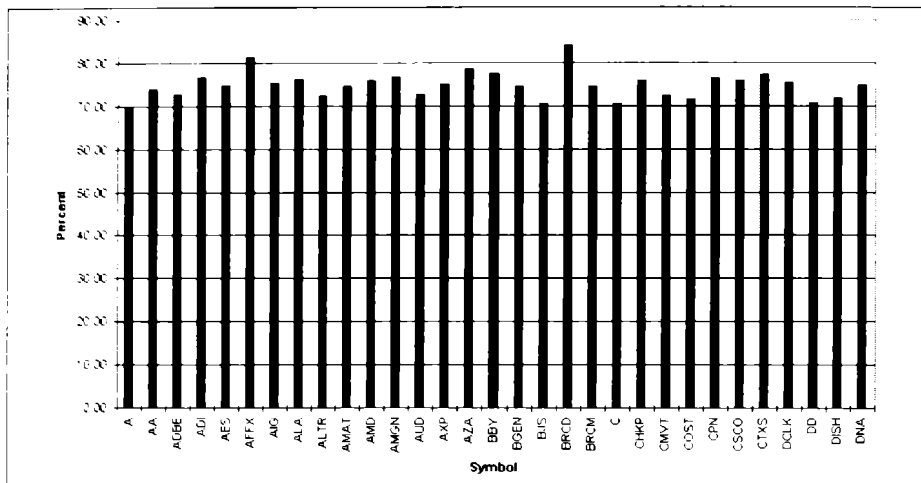
average profit displays a nearly tenfold range from \$.70 for ALA to nearly \$7 for CHKP.

Compare this with Figure 13.8, which graphs the same stocks during the same 60-minute breakout period, measuring them by the percentage of days during which a breakout of the 60-minute range occurred on only one side of the intraday range.

Comparing the responses of the same two stocks as before, the percentage of successful breakouts for ALA is 70 percent while CHKP is 75.82 percent. Although the two issues seem roughly equal when compared as a function of successful breakouts, the profitability of trading CHKP is significantly higher than would be indicated for ALA when one considers the relative profitability of trades generated by each issue.

Once again, here is statistical evidence of the wide variety of responses of different issues to the same parameter, enforcing again the necessity of customizing your strategy to each issue to be traded rather than expecting all stocks to be traded well by the same system.





**Figure 13.8** Successful one-sided breakouts of the 60-minute time frame, expressed as a percentage of the total days tested, are graphed for a selected number of issues. Note the significant variance in response between issues.

## CHAPTER REVIEW

1. The Directional Day Filter has another use: Its data can be used to fabricate a breakout trading strategy.
2. Careful observation of historical data is important in setting the parameters for the breakout.
3. Each stock issue will respond somewhat differently to this breakout scenario.
4. Data generated from a significant database validates the theory that one side of most daily ranges is formed rather early in the session.



# 14

## USING AN AUTOMATED SYSTEM

So far we have concentrated on the use of several indicator combinations to develop a functional day trading system. The effort thus far has been primarily directed toward those persons who wish to trade from a discretionary standpoint, taking their clues from machine-generated data, and graphic plots and, in general, experienced chart observation.

Although totally automatic, computerized trading systems are not the focus of this book, a brief overview of the process is included here for those who will want to take system design and implementation to the next level.

Near the conclusion of Chapter 12 I discussed the difficulties that traders have keeping track of the various combinations of oscillator indicators, support and resistance formations, and information gleaned from the use of the Directional Day Filter. Use of an automated trading system can significantly simplify trading such a strategy, as the programmed system can consider all of the above when generating a single trading signal.

I often relate to traders that it is necessary to use not only the computer on your desk but also the one between your ears. It will be a very long time before we are able to duplicate a human mind on a

silicon chip. Although we are able to automate many of the mathematical procedures that lead to trade generation, traders must always leave themselves some room for input.

The previous strategy places considerable dependence on human intervention as computerized indicators generate the various stochastic, RSI, and Percent R plots from which we are able to make our trading decisions. Automated systems actually take into consideration all of these factors and generate the trading signal at the proper time and price.

These systems by their very nature must have strictly defined parameters from which to operate. While this feature assumes some of the decision process from the trader, the advantage of such a system is that it provides significantly more options from a testing standpoint. These systems, when applied to historical data, will provide a picture of profits and losses that would have occurred had the system actually been trading over this time period. Various combinations of system inputs can be tested to give the trader multiple options for either trading or additional testing.

The testing of trading systems can be a significant advantage in that the trader is able to assess the effectiveness of a system and make adjustments prior to placing actual trading capital at risk in the marketplace. Again, as mentioned previously, trader confidence is a big part of eventual trading success. Having a system that tests well against back data certainly can increase one's confidence level.

However, automated system testing can also be a significant detriment to a trader. Since today's software is capable of testing multiple system settings against historical data, the possibility exists that these parameters can be tested to the level that they report a fantastic profit picture over past data. This type of testing, also referred to as curve fitting, gives an unrealistic picture of historical performance. The system parameters are so closely fit to the historical data to which they were applied that the system has virtually no chance of repeating this performance in real time. Many traders have learned this one the hard way as their super system gradually crumbles before their eyes in real trading.

These problems can be avoided by the use of system testing applied as an "out of sample" routine. This procedure involves the testing of a given amount of data, six months for example, and then applying the resulting system parameters to the next six months of

data. The results of the application to the next set of data simulates real-time trading to some degree. In this fashion the system parameters are not curve fit to the testing data and are therefore more realistic. Although this routine is complex and beyond the scope of this book, be aware that there are productive uses of system testing that can be a definite benefit to the design of a successful system.

Perhaps the best use of an automated system for the purposes put forward in this book is to use them as a method by which to determine the most effective settings for dual oscillator indicators. By applying these indicators as systems one is able to get an idea of which settings are the most effective for the particular market and time frame of interest.

In this chapter I am going to take you through this next step, briefly exposing you to the world of computerized system development. This type of system structure also requires the use of the computer between your ears, but more on the front end, where the strategies are developed and tested, and less on the back end when the signals are actually placed into the market. The next few paragraphs cover the thought process one could go through when designing a system to test the breakout strategy that revolves around the intraday range as determined fairly early in the day by the Directional Day Filter.

As you will recall from the previous chapter, one of the major steps in formulating a stock trading system is actually selecting the stocks to trade. There are many routines available for this task. In this instance I will make use of the statistical analysis performed previously to demonstrate the differences in reaction of the portfolio to given system parameters. Table 14.1 reflects the relative rankings of the top 15 stocks from the database, rated by the average maximum profit attainable by each from a long breakout.

This list represents the issues that look as though they should respond well to the system in general. By applying a computerized trading system to each of these issues one is able to make several observations relative to the performance of the system. You will recall from previous discussions that the response of individual issues to a particular system will vary significantly. By applying the same system to each of the 15 issues in the list, one is able to define the system further, altering it slightly in such a fashion that it can be expected to respond in an optimal manner to each issue according to the specific

**Table 14.1** Top 15 Stocks from Database

Symbol	Average High
CHKP	\$6.84
ITWO	6.63
AFFX	6.61
PMCS	6.43
BRCM	6.37
GLW	5.91
RMBS	5.85
BRCD	5.72
INKT	5.50
QCOM	4.89
YHOO	4.72
QLGC	4.56
JDSU	4.47
DNA	4.25
SEBL	4.24

personality of the stock in question. The timing of the breakout entry as well as specific target and stop levels may be determined either individually or in combination with each other using this technology.

Initially, entry routines are selected by testing the system using a series of breakout times ranging from 30 minutes to one and a half hours after the open. Data generated from this test will usually report a range of breakout times that will be acceptable for the system when applied to an individual issue. The actual selection of a specific breakout time will be selected from this range after ranges for other system parameters are available.

We must now set exit parameters. While there are a number of strategies that are useful for both profit taking and stop loss protection, I have chosen to place a calculated target for purposes of taking profit and a calculated stop loss point to protect the position.

Think about a profit target from the larger perspective of trading over an entire calendar year. If you were able to take a profit of only 1 percent of the value of a stock each week, you would have an annual rate of return of 50 percent on your trading capital. Not bad. Assuming conservatively that half our trades will be profitable, we should

try to gain 2 percent per week or better to achieve our goal of 1 percent. Therefore, let's try for a profit on each trade of 2 to 3 percent of the value of the underlying security. If we can do this, then our goal of 1 percent profit per week should be conservatively within reach.

In many ways it is much easier to speak of profit targets and stop losses as a percent of the value of the item being traded than to try to take \$1 or \$2 or \$3 per share from each trade. While it might be possible to take a \$1 or \$2 profit regularly from trading a \$250 stock, it would be quite a feat to make the same gain on a \$25 stock. A percentage target is also one that can be more uniformly applied across an entire trading portfolio.

The same is true of a stop loss determination. If we are to take a rather small 2 to 3 percent profit we cannot afford to have our losses amount to much more than that, especially if we are assuming that half of the trades will be profitable.

In much the same manner as was used to set the breakout time for trade entry, an automated system can be utilized to establish a range of effective profit targets and stop loss levels. When these lists have been created, this same program can then be used to select the combination of breakout time, profit target, and stop loss level that is most profitable considering the trading style of the user.

Now, let's recap our decisions. We will set up the system to trade the breakout of the early range sometime during the first one and a half hours of the session. We will attempt to take 2 to 3 percent of the value of the underlying security as a profit target, risking about the same amount as our target level.

Wait a minute. Don't we need to be a bit more specific in these parameter determinations? The answer is both yes and no. We will definitely need to have more rigid parameters for each stock issue when we actually trade. But for now, still in the testing stage, it is adequate for our purposes to define the ranges for each parameter more loosely. Remember that each issue will respond a bit differently in its most profitable configuration as far as the system goes. Systematic testing of all three of our trading parameters can now define the settings for each security.

For instance, it could be determined by such system testing that PMCS responds most favorably to a breakout strategy applied 75 minutes after the open with a profit target of \$4.25 and with a stop loss placed \$3 from the entry point. BRCD may be found to be most prof-

itable trading the 45-minute breakout with a \$3 target and a \$3 stop loss. It is also a distinct possibility that an issue such as CHKP or ITWO may require, to be profitable, a large stop loss that would make trading this system against these issues impractical considering the risk-carrying ability of the trader. (Please be aware that these system parameters are presented here as examples only. These issues have not been tested against this system.) Other issues will be found to respond in much the same manner, all with different parameters.

Although this testing routine could be accomplished manually, the use of automated system testing software—such as Omega's TradeStation line of products, which has been used throughout this book—certainly simplifies the task while also reducing the possibility of error. An incredible amount of time would be required to design a system individually adapted by hand to each stock or commodity contract to be included in a trading portfolio.

Testing each issue using the out-of-sample routine will give values for our system settings that can be employed confidently in real-time trading.

## CHAPTER REVIEW

1. Computerized trading systems offer the advantage of actual generation of trades from market data.
2. The advantage of these routines is the ability to observe the behavior of a system on historical data prior to actual trading.
3. The disadvantage is the temptation to curve fit a system to such an extent as to give an unrealistic picture of expected system performance.
4. System testing affords the trader the ability to determine the best system settings for use on each individual issue to be traded.



# 15

## USING ONLINE CHARTING SERVICES

As mentioned in the introduction to this book, there now exist multiple web sites and online trading centers that offer as a portion of their services the use of the oscillator indicators we have covered in this book.

New sites and centers appear regularly on the Internet, almost on a weekly basis. While it is not possible or practical to cover a significant number of these resources here, I will attempt to familiarize the reader with a few items that are important to the use of these tools.

While these indicators are readily available and in all likelihood are calculated by the same basic formula, they will appear a bit differently on each site. For instance, stochastic could be referred to as “fast % k,” “fast % d,” “slow k,” “fast d,” “fast stochastic,” or any combination of these. Percent R could appear as “Range Percent,” “Williams Pct R,” or others. RSI may be represented as “relative strength” or “Wilder’s RSI” after the originator of the study. Be careful here, as the term “relative strength” is often used when comparing the activity of a group of stocks to another group or to actually describe the relationship of individual stocks to each other within a given group.

Also, on some services it is not possible to apply indicators to the same chart using multiple sensitivity settings. On such occasions it

will be necessary first to apply the slow indicator to the chart, and switch to the faster setting when the slow setting has been satisfied and your attention then changes to that parameter.

Following are images of some of the currently useful sites that exist at the time of publication of this book. While this is by no means comprehensive coverage of the large number of useful trading sites, you can become somewhat familiar with the layout and capabilities you will encounter when using these items.

Trade Signal Corporation Ltd. ([www.tradesignals.com](http://www.tradesignals.com)), founded in 1997, publishes quantitative technical analysis, daily news, advice, commentary, trade alerts, real-time quotes, dynamic charts, intraday and end-of-day interactive Java charting, and quotes on the World Wide Web and by e-mail.

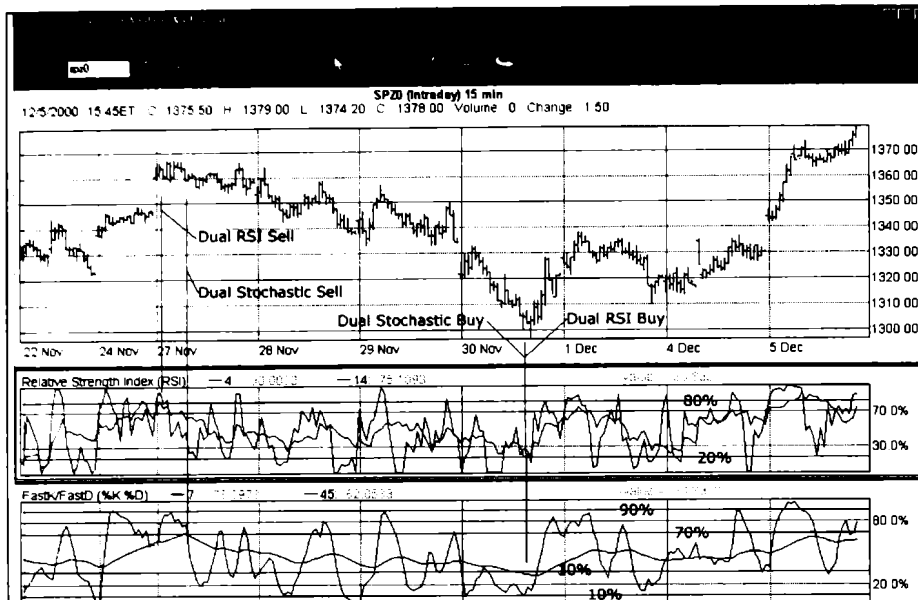
TradeSignals.com also provides a full range of trading tools. Stochastic is represented both as FastK/FastD and Quick Stochastic. It is possible on this site to represent both of our dual stochastic settings on a single subgraph using the FastK/FastD indicator as indicated in Figure 15.1. The RSI indicator is also on this chart. TradeSignals also offers the ability to chart two settings of this indicator on the same subgraph, as indicated.

To demonstrate the use of these indicator combinations on longer time frames, I have applied these tools to a 15-minute S&P futures chart that spans several days. Buy and sell points as issued by the combinations of both indicators are identified on the chart. For easy reference I have labeled the overbought and oversold thresholds on each indicator subgraph.

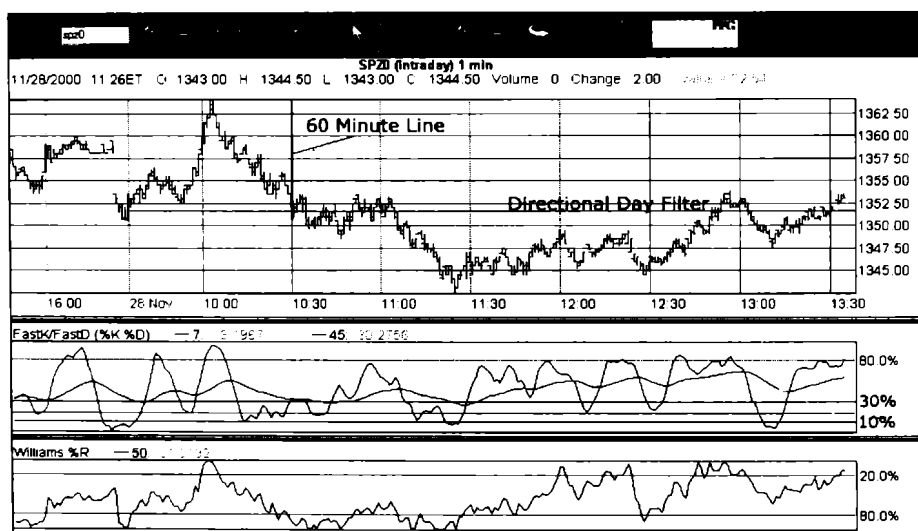
Figure 15.2 describes the method by which the Directional Day Filter may be utilized on a TradeSignals.com chart. Since this package provides a trend line drawing tool, one can simply calculate the average of the first five minutes of trading and draw a horizontal trend line on the chart at that point. One can then also draw the vertical component of this filter, again using the trend line tool, placing the line at the appropriate chart location as shown.

Note that the filter is indicating that long signals would be most appropriate for this trading session. Dual settings of the stochastic indicator and a 50-period setting of Percent R identify individual buying points.

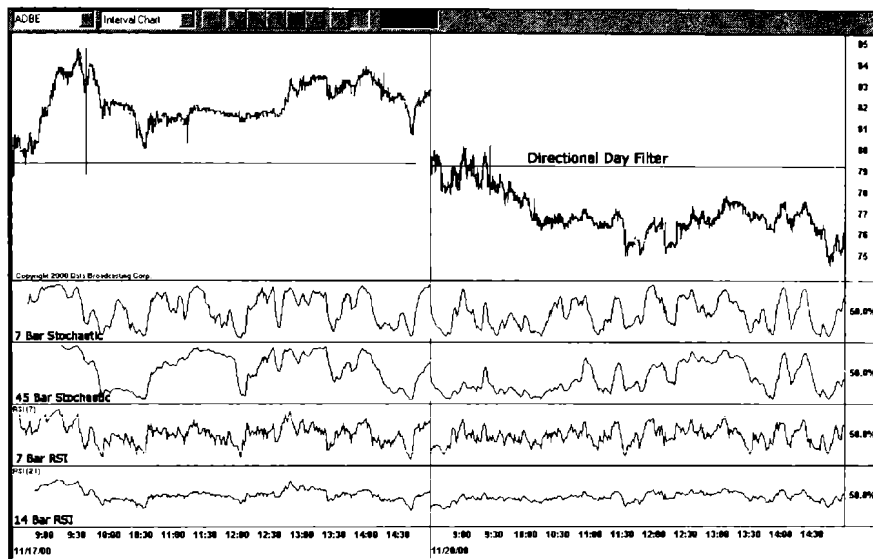
Figure 15.3 is by eSignal, which provides Internet-delivered,



**Figure 15.1** RSI and stochastic plots are giving sell signals early in the day. Chart courtesy of Trade Signal Corporation, Ltd.



**Figure 15.2** Use of the Directional Day Filter, stochastic, and Percent R are demonstrated on a popular online charting package. Chart courtesy of Trade Signal Corporation, Ltd.



**Figure 15.3** The Directional Day Filter is applied manually using the trendline drawing tool. Separate plots of stochastic and RSI are applied by the charting package.

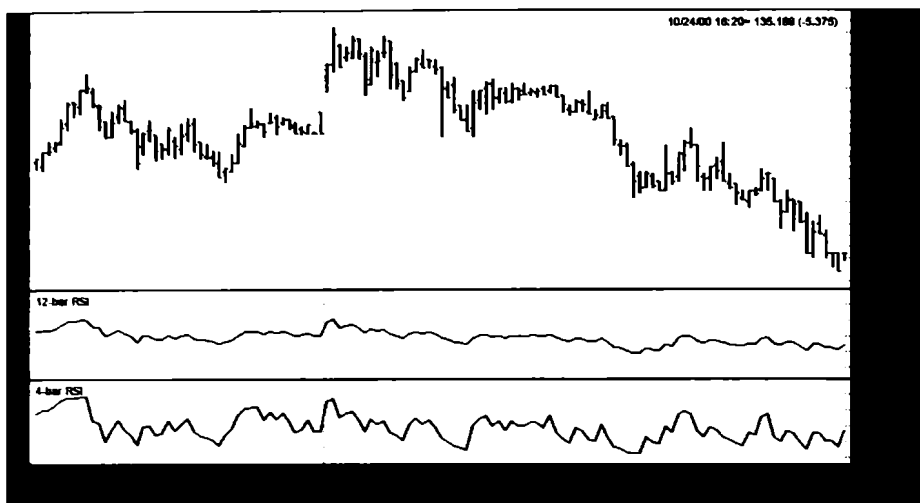
Chart courtesy of eSignal.

real-time, continuously updated market quotes, charts, news, and fundamental data. A thorough presentation of the services offered by eSignal can be found at its web site at [www.esignal.com](http://www.esignal.com).

This chart demonstrates, on a one-minute chart of ADBE (Adobe Systems Inc.), one of many chart views that can be generated by the eSignal platform. Identified on the chart are the typical 7-bar and 45-bar stochastic plots along with a 7- and 14-bar dual RSI. The trend line drawing feature provided allows the user to apply the Directional Day Filter manually, as was the case with TradeSignals.com.

Figure 15.4 is from Genesis Financial Data Services, a leading provider of financial market data and powerful analytical tools since 1984. Genesis provides extensive historical charts that are available to traders who have a desire to examine these methods on a significant amount of accurate historical data. From historical tick data on futures to a 30-year historical package of U.S. equities, there is a data package for everyone.

As was the case with the previous images in this section, this chart is only a small representation of the capability of firms provid-



**Figure 15.4** Two plots of RSI are applied to a chart of ADBE.

Chart courtesy of Genesis Financial Data Services.

ing these services. In this instance, Genesis has applied our dual RSI routine to a five-minute chart, also of ADBE.

I have mentioned on multiple occasions through this book that traders will find it beneficial to test their favorite trading tools against as much historical data as possible to gain the confidence necessary to become effective traders. More information is available from Genesis at [www.gfds.com](http://www.gfds.com).

Additionally, there is now available online the platform by Omega Research that was used to create the charts and trading routines presented in this book (more information is available from Omega at [www.TradeStation.com](http://www.TradeStation.com)).

## CHAPTER REVIEW

1. Multiple sites offering online charting capabilities are available on the Internet. The number of sites and their respective offerings grows and changes almost daily.
2. Charts from several such sites are provided here to familiarize readers with a small section of these offerings.



# 16

## OTHER INDICATORS AND SYSTEMS

The development of trading indicators and systems as well as their prime application to various stock issues and commodity contracts is an ongoing, dynamic process.

In a book of this nature it is possible only to set forth my indicator and system programs, designs, and applications up to a certain point in time. For further updates please go to my web site ([www.clayburg.com](http://www.clayburg.com)).

All charts and examples that you have seen in this book were created using TradeStation by Omega Research. These programs can be downloaded from the web site and used as such by current users of this charting package. Included are instructions for the transfer and installation of the software.

The material presented in this book to illustrate the four-step trading method has used only those indicators that are available on many of the online charting services. For those who wish to take this theory to the next level I have available on the same web site proprietary indicators that look for exhausted corrections using mathematical processes such as standard deviation, linear regression, and exponentially smoothed functions. These indicators, known as Cluster,

Reversal, Real Time Pivot, and Exhaustion, also use certain self-adaptive pattern recognition routines. These tools can be helpful in system design as their functionality allows them to adjust their system variables dynamically as dictated by current market conditions. Considerable information on this self-adaptive programming technique, known as Parallel Function Technology, can also be reviewed or downloaded from the site. Parallel Functions can be a significant aid to self-adaptive system programming, a technique on which I have given several seminars at national conferences.

These tools are currently available only for use on the Omega TradeStation charting packages. Development of these programs for use on other charting packages will be undertaken as their programming interfaces develop to the level necessary to accommodate these self-adaptive routines.

At the time of this writing TradeStation is available as both the original PC-based stand-alone software and a browser-based Internet delivery platform. I would encourage serious system developers to consider one of these products as your system development and testing platform.

Let me conclude by encouraging every reader to utilize the information presented here as it was intended—not to be blindly followed, but to be used as a series of building blocks to either enhance your present trading strategy or build your own personalized strategy from the ground up.

As technology continues to develop at an amazing rate, there will undoubtedly be new and possibly useful trading techniques available to traders. What you have learned here will serve as the basic building blocks for any future strategies you may develop.

Finally, I would like to wish all of you the best in your future life endeavors, what ever they may be.



# DATA APPENDIX

The data included in this appendix was generated using the same program that created the tables used in Chapter 13. Due to space limitations some of the data has been deleted, specifically the columns listing the symbol name, days tested, and the actual number of highs and lows recorded. The number of days tested appears in the heading on each page under the symbol name. All other relevant data pertaining to frequency of various breakout scenarios and the average maximums for both long and short breakouts has been retained. Also due to space limitations, only selected issues are printed here.

The complete data table for all stock included in the database is available on my web site ([www.clayburg.com](http://www.clayburg.com)).

When using the data from these tables, please keep in mind that the numbers here were generated from the time period between January 1, 2000, through December 1, 2000. During this time period there was considerable volatility in the Nasdaq market with some selected shares losing an incredible percentage of their value. Keep in mind that some of the issues represented here were trading over \$100 per share at the beginning of the data run and could have been trading under \$20 per share at the end of the analysis. This has significant impact for the categories displaying the average maximum highs and average maximum lows shown for these issues, although the categories representing the relative percentages of various breakout times should not be affected substantially.

**ADBE Adobe Systems Inc.**  
**Days Reported: 221**

Delay	One-Sided		No		Double		Average High	Average Low
	Breakout	Percent	Breakout	Percent	Breakout	Percent	Maximum	Maximum
15	118	53.39	0	0.00	103	46.61	\$4.54	\$4.96
20	132	59.73	1	0.45	88	39.82	4.29	4.54
25	144	65.16	3	1.36	74	33.48	4.12	4.39
30	151	68.33	5	2.26	65	29.41	4.05	4.25
35	157	71.04	5	2.26	59	26.70	3.97	4.13
40	159	71.95	7	3.17	55	24.89	3.81	4.08
45	162	73.30	12	5.43	47	21.27	3.74	4.04
50	164	74.21	12	5.43	45	20.36	3.73	3.93
55	163	73.76	17	7.69	41	18.55	3.65	3.89
60	167	75.57	18	8.14	36	16.29	3.46	3.67
65	166	75.11	22	9.95	33	14.93	3.40	3.58
70	167	75.57	24	10.86	30	13.57	3.35	3.47
75	169	76.47	25	11.31	27	12.22	3.25	3.37
80	170	76.92	26	11.76	25	11.31	3.21	3.34
85	168	76.02	28	12.67	25	11.31	3.17	3.34
90	169	76.47	30	13.57	22	9.95	3.13	3.28
95	170	76.92	31	14.03	20	9.05	3.04	3.22
100	169	76.47	34	15.38	18	8.14	2.97	3.19
105	171	77.38	36	16.29	14	6.33	2.92	3.18
110	171	77.38	36	16.29	14	6.33	2.89	3.16
115	170	76.92	38	17.19	13	5.88	2.85	3.17
120	167	75.57	41	18.55	13	5.88	2.90	3.10
125	165	74.66	43	19.46	13	5.88	2.84	3.13
130	165	74.66	43	19.46	13	5.88	2.78	3.08
135	166	75.11	43	19.46	12	5.43	2.72	3.03
140	167	75.57	43	19.46	11	4.98	2.67	2.98
145	167	75.57	43	19.46	11	4.98	2.66	2.94
150	168	76.02	44	19.91	9	4.07	2.63	2.88
155	166	75.11	46	20.81	9	4.07	2.61	2.86
160	164	74.21	50	22.62	7	3.17	2.63	2.97
165	159	71.95	54	24.43	8	3.62	2.61	3.03
170	156	70.59	58	26.24	7	3.17	2.63	3.09
175	154	69.68	60	27.15	7	3.17	2.61	3.14
180	154	69.68	61	27.60	6	2.71	2.64	3.09
185	155	70.14	61	27.60	5	2.26	2.62	3.07
190	154	69.68	62	28.05	5	2.26	2.64	3.06
195	154	69.68	62	28.05	5	2.26	2.63	3.05
200	154	69.68	62	28.05	5	2.26	2.59	3.05
205	155	70.14	62	28.05	4	1.81	2.54	3.00
210	153	69.23	64	28.96	4	1.81	2.54	2.91
215	153	69.23	64	28.96	4	1.81	2.51	2.89
220	151	68.33	65	29.41	5	2.26	2.51	2.81
225	151	68.33	66	29.86	4	1.81	2.50	2.77
230	149	67.42	68	30.77	4	1.81	2.47	2.78
235	147	66.52	70	31.67	4	1.81	2.45	2.83
240	145	65.61	72	32.58	4	1.81	2.50	2.76

**ADI Analog Devices Inc.**  
**Days Reported: 373**

Delay	One-Sided		No		Double		Average High	Average Low
	Breakout	Percent	Breakout	Percent	Breakout	Percent	Maximum	Maximum
15	163	43.70	1	0.27	209	56.03	\$2.74	\$2.71
20	188	50.40	2	0.54	183	49.06	2.54	2.56
25	217	58.18	3	0.80	153	41.02	2.36	2.31
30	240	64.34	4	1.07	129	34.58	2.15	2.22
35	255	68.36	5	1.34	113	30.29	2.07	2.07
40	265	71.05	8	2.14	100	26.81	2.03	1.92
45	274	73.46	10	2.68	89	23.86	1.96	1.83
50	280	75.07	12	3.22	81	21.72	1.94	1.76
55	290	77.75	16	4.29	67	17.96	1.81	1.70
60	293	78.55	17	4.56	63	16.89	1.75	1.64
65	295	79.09	23	6.17	55	14.75	1.69	1.61
70	301	80.70	26	6.97	46	12.33	1.65	1.57
75	295	79.09	29	7.77	49	13.14	1.63	1.55
80	298	79.89	33	8.85	42	11.26	1.61	1.50
85	295	79.09	39	10.46	39	10.46	1.58	1.53
90	296	79.36	41	10.99	36	9.65	1.54	1.51
95	294	78.82	44	11.80	35	9.38	1.50	1.50
100	293	78.55	49	13.14	31	8.31	1.47	1.46
105	296	79.36	50	13.40	27	7.24	1.42	1.42
110	294	78.82	52	13.94	27	7.24	1.42	1.38
115	292	78.28	57	15.28	24	6.43	1.42	1.37
120	291	78.02	60	16.09	22	5.90	1.42	1.34
125	292	78.28	58	15.55	23	6.17	1.37	1.31
130	287	76.94	62	16.62	24	6.43	1.36	1.32
135	286	76.68	66	17.69	21	5.63	1.35	1.31
140	283	75.87	69	18.50	21	5.63	1.34	1.30
145	282	75.60	72	19.30	19	5.09	1.32	1.29
150	276	73.99	77	20.64	20	5.36	1.31	1.31
155	275	73.73	78	20.91	20	5.36	1.29	1.29
160	270	72.39	78	20.91	25	6.70	1.30	1.29
165	268	71.85	84	22.52	21	5.63	1.28	1.33
170	265	71.05	87	23.32	21	5.63	1.27	1.25
175	266	71.31	86	23.06	21	5.63	1.24	1.23
180	270	72.39	88	23.59	15	4.02	1.24	1.16
185	265	71.05	95	25.47	13	3.49	1.24	1.18
190	262	70.24	97	26.01	14	3.75	1.21	1.19
195	254	68.10	103	27.61	16	4.29	1.23	1.18
200	254	68.10	107	28.69	12	3.22	1.23	1.13
205	249	66.76	113	30.29	11	2.95	1.23	1.13
210	244	65.42	117	31.37	12	3.22	1.25	1.13
215	247	66.22	117	31.37	9	2.41	1.21	1.10
220	248	66.49	116	31.10	9	2.41	1.18	1.12
225	244	65.42	119	31.90	10	2.68	1.20	1.13
230	243	65.15	121	32.44	9	2.41	1.16	1.05
235	236	63.27	128	34.32	9	2.41	1.15	1.07
240	234	62.73	128	34.32	11	2.95	1.12	1.02

**AIG American International Group**  
**Days Reported: 212**

Delay	One-Sided		No		Double		Average High	Average Low
	Breakout	Percent	Breakout	Percent	Breakout	Percent	Maximum	Maximum
15	109	51.42	0	0.00	103	48.58	\$2.17	\$2.26
20	121	57.08	2	0.94	89	41.98	2.15	2.08
25	129	60.85	5	2.36	78	36.79	2.02	1.93
30	137	64.62	6	2.83	69	32.55	1.99	1.91
35	141	66.51	8	3.77	63	29.72	1.91	1.87
40	146	68.87	9	4.25	57	26.89	1.84	1.82
45	150	70.75	9	4.25	53	25.00	1.75	1.69
50	151	71.23	12	5.66	49	23.11	1.76	1.60
55	154	72.64	13	6.13	45	21.23	1.70	1.49
60	153	72.17	17	8.02	42	19.81	1.64	1.48
65	154	72.64	19	8.96	39	18.40	1.61	1.46
70	153	72.17	20	9.43	39	18.40	1.56	1.43
75	155	73.11	21	9.91	36	16.98	1.55	1.38
80	157	74.06	23	10.85	32	15.09	1.50	1.36
85	156	73.58	24	11.32	32	15.09	1.45	1.32
90	157	74.06	27	12.74	28	13.21	1.40	1.30
95	157	74.06	28	13.21	27	12.74	1.38	1.26
100	158	74.53	29	13.68	25	11.79	1.35	1.25
105	155	73.11	33	15.57	24	11.32	1.35	1.25
110	158	74.53	33	15.57	21	9.91	1.31	1.22
115	158	74.53	33	15.57	21	9.91	1.29	1.21
120	157	74.06	34	16.04	21	9.91	1.26	1.21
125	154	72.64	36	16.98	22	10.38	1.26	1.22
130	156	73.58	36	16.98	20	9.43	1.22	1.18
135	155	73.11	38	17.92	19	8.96	1.21	1.17
140	155	73.11	39	18.40	18	8.49	1.21	1.13
145	154	72.64	42	19.81	16	7.55	1.20	1.13
150	153	72.17	43	20.28	16	7.55	1.18	1.12
155	150	70.75	46	21.70	16	7.55	1.13	1.13
160	150	70.75	47	22.17	15	7.08	1.14	1.11
165	149	70.28	47	22.17	16	7.55	1.12	1.10
170	149	70.28	49	23.11	14	6.60	1.12	1.08
175	146	68.87	52	24.53	14	6.60	1.10	1.08
180	147	69.34	52	24.53	13	6.13	1.08	1.05
185	146	68.87	54	25.47	12	5.66	1.06	1.06
190	144	67.92	56	26.42	12	5.66	1.04	1.04
195	141	66.51	59	27.83	12	5.66	1.01	1.00
200	141	66.51	60	28.30	11	5.19	0.99	0.99
205	141	66.51	61	28.77	10	4.72	1.01	0.98
210	140	66.04	63	29.72	9	4.25	0.99	0.97
215	140	66.04	64	30.19	8	3.77	0.97	0.96
220	139	65.57	65	30.66	8	3.77	0.96	1.02
225	139	65.57	65	30.66	8	3.77	0.89	0.99
230	137	64.62	67	31.60	8	3.77	0.93	0.98
235	135	63.68	69	32.55	8	3.77	0.88	0.89
240	133	62.74	71	33.49	8	3.77	0.87	0.89

**AMAT Applied Materials Inc.**  
**Days Reported: 210**

Delay	One-Sided		No		Double		Average High	Average Low
	Breakout	Percent	Breakout	Percent	Breakout	Percent	Maximum	Maximum
15	107	50.95	1	0.48	102	48.57	\$4.12	\$3.63
20	118	56.19	1	0.48	91	43.33	3.67	3.59
25	131	62.38	1	0.48	78	37.14	3.35	3.38
30	141	67.14	2	0.95	67	31.90	3.18	3.20
35	143	68.10	2	0.95	65	30.95	2.90	3.05
40	149	70.95	4	1.90	57	27.14	2.97	2.90
45	154	73.33	5	2.38	51	24.29	2.80	2.76
50	156	74.29	9	4.29	45	21.43	2.81	2.72
55	157	74.76	11	5.24	42	20.00	2.68	2.65
60	159	75.71	12	5.71	39	18.57	2.65	2.54
65	163	77.62	14	6.67	33	15.71	2.60	2.46
70	161	76.67	18	8.57	31	14.76	2.57	2.43
75	160	76.19	20	9.52	30	14.29	2.65	2.41
80	159	75.71	21	10.00	30	14.29	2.65	2.36
85	157	74.76	24	11.43	29	13.81	2.61	2.34
95	159	75.71	28	13.33	23	10.95	2.56	2.22
95	159	75.71	28	13.33	23	10.95	2.56	2.22
100	159	75.71	29	13.81	22	10.48	2.53	2.18
105	157	74.76	32	15.24	21	10.00	2.54	2.19
110	158	75.24	32	15.24	20	9.52	2.54	2.15
115	158	75.24	34	16.19	18	8.57	2.55	2.15
120	161	76.67	34	16.19	15	7.14	2.53	2.11
125	159	75.71	36	17.14	15	7.14	2.50	2.12
130	162	77.14	36	17.14	12	5.71	2.47	2.11
135	162	77.14	36	17.14	12	5.71	2.46	2.09
140	162	77.14	36	17.14	12	5.71	2.44	2.08
145	161	76.67	37	17.62	12	5.71	2.41	2.04
150	162	77.14	38	18.10	10	4.76	2.42	2.02
155	160	76.19	39	18.57	11	5.24	2.41	2.02
160	161	76.67	40	19.05	9	4.29	2.42	2.00
165	160	76.19	41	19.52	9	4.29	2.31	1.98
170	159	75.71	43	20.48	8	3.81	2.34	1.98
175	159	75.71	44	20.95	7	3.33	2.36	1.99
180	159	75.71	45	21.43	6	2.86	2.34	1.97
185	159	75.71	45	21.43	6	2.86	2.32	1.97
190	161	76.67	45	21.43	4	1.90	2.26	1.96
195	161	76.67	45	21.43	4	1.90	2.24	1.93
200	160	76.19	46	21.90	4	1.90	2.21	1.93
205	159	75.71	47	22.38	4	1.90	2.20	1.94
210	159	75.71	47	22.38	4	1.90	2.18	1.90
215	158	75.24	48	22.86	4	1.90	2.20	1.88
220	157	74.76	49	23.33	4	1.90	2.19	1.86
225	156	74.29	50	23.81	4	1.90	2.14	1.86
230	154	73.33	52	24.76	4	1.90	2.15	1.84
235	155	73.81	52	24.76	3	1.43	2.13	1.80
240	155	73.81	52	24.76	3	1.43	2.12	1.77

**AMGN Amgen Inc.**  
**Days Reported: 224**

Delay	One-Sided		No		Double		Average High	Average Low
	Breakout	Percent	Breakout	Percent	Breakout	Percent	Maximum	Maximum
15	120	53.57	1	0.45	103	45.98	\$2.33	\$2.54
20	132	58.93	1	0.45	91	40.63	2.17	2.34
25	133	59.38	5	2.23	86	38.39	2.06	2.21
30	144	64.29	7	3.13	73	32.59	1.88	2.10
35	150	66.96	7	3.13	67	29.91	1.83	2.00
40	157	70.09	8	3.57	59	26.34	1.72	1.92
45	156	69.64	11	4.91	57	25.45	1.62	1.89
50	158	70.54	12	5.36	54	24.11	1.52	1.83
55	162	72.32	15	6.70	47	20.98	1.47	1.83
60	167	74.55	18	8.04	39	17.41	1.37	1.78
65	172	76.79	19	8.48	33	14.73	1.35	1.76
70	172	76.79	21	9.38	31	13.84	1.34	1.71
75	171	76.34	22	9.82	31	13.84	1.31	1.67
80	171	76.34	23	10.27	30	13.39	1.28	1.61
85	169	75.45	26	11.61	29	12.95	1.24	1.56
90	168	75.00	30	13.39	26	11.61	1.24	1.50
95	166	74.11	35	15.63	23	10.27	1.25	1.48
100	163	72.77	39	17.41	22	9.82	1.26	1.49
105	161	71.88	43	19.20	20	8.93	1.24	1.47
110	162	72.32	43	19.20	19	8.48	1.20	1.45
115	161	71.88	44	19.64	19	8.48	1.15	1.44
120	157	70.09	47	20.98	20	8.93	1.17	1.41
125	156	69.64	50	22.32	18	8.04	1.16	1.41
130	157	70.09	52	23.21	15	6.70	1.13	1.40
135	156	69.64	53	23.66	15	6.70	1.10	1.39
140	157	70.09	53	23.66	14	6.25	1.08	1.37
145	156	69.64	54	24.11	14	6.25	1.05	1.35
150	156	69.64	56	25.00	12	5.36	1.04	1.31
155	155	69.20	57	25.45	12	5.36	1.04	1.27
160	152	67.86	60	26.79	12	5.36	0.98	1.24
165	148	66.07	64	28.57	12	5.36	0.99	1.24
170	146	65.18	67	29.91	11	4.91	1.00	1.23
175	146	65.18	67	29.91	11	4.91	1.00	1.20
180	143	63.84	70	31.25	11	4.91	0.98	1.22
185	142	63.39	71	31.70	11	4.91	0.95	1.21
190	144	64.29	71	31.70	9	4.02	0.91	1.16
195	142	63.39	73	32.59	9	4.02	0.91	1.12
200	139	62.05	77	34.38	8	3.57	0.91	1.11
205	139	62.05	78	34.82	7	3.13	0.89	1.07
210	138	61.61	79	35.27	7	3.13	0.88	1.05
215	138	61.61	80	35.71	6	2.68	0.87	1.00
220	135	60.27	83	37.05	6	2.68	0.86	1.00
225	135	60.27	84	37.50	5	2.23	0.83	0.98
230	132	58.93	87	38.84	5	2.23	0.83	0.99
235	132	58.93	87	38.84	5	2.23	0.80	0.96
240	130	58.04	89	39.73	5	2.23	0.77	0.94

**AXP American Express Company**  
**Days Reported: 298**

Delay	One-Sided		No		Double		Average High	Average Low
	Breakout	Percent	Breakout	Percent	Breakout	Percent	Maximum	Maximum
15	144	48.32	0	0.00	154	51.68	\$2.86	\$2.81
20	163	54.70	1	0.34	134	44.97	2.69	2.87
25	179	60.07	1	0.34	118	39.60	2.45	2.71
30	184	61.74	1	0.34	113	37.92	2.37	2.56
35	193	64.77	4	1.34	101	33.89	2.39	2.44
40	201	67.45	5	1.68	92	30.87	2.20	2.42
45	206	69.13	6	2.01	86	28.86	2.18	2.38
50	208	69.80	9	3.02	81	27.18	2.15	2.30
55	208	69.80	12	4.03	78	26.17	2.17	2.26
60	210	70.47	16	5.37	72	24.16	2.14	2.21
65	212	71.14	20	6.71	66	22.15	2.06	2.15
70	211	70.81	21	7.05	66	22.15	2.04	2.11
75	220	73.83	23	7.72	55	18.46	1.96	1.98
80	219	73.49	23	7.72	56	18.79	1.86	1.97
85	222	74.50	28	9.40	48	16.11	1.77	1.97
95	224	75.17	32	10.74	42	14.09	1.74	1.86
95	224	75.17	32	10.74	42	14.09	1.74	1.86
100	221	74.16	38	12.75	39	13.09	1.67	1.78
105	222	74.50	40	13.42	36	12.08	1.60	1.74
110	218	73.15	43	14.43	37	12.42	1.57	1.72
115	216	72.48	45	15.10	37	12.42	1.53	1.72
120	219	73.49	45	15.10	34	11.41	1.58	1.70
125	220	73.83	47	15.77	31	10.40	1.46	1.68
130	219	73.49	49	16.44	30	10.07	1.41	1.67
135	218	73.15	50	16.78	30	10.07	1.44	1.62
140	220	73.83	53	17.79	25	8.39	1.41	1.56
145	216	72.48	55	18.46	27	9.06	1.42	1.53
150	218	73.15	57	19.13	23	7.72	1.35	1.48
155	216	72.48	58	19.46	24	8.05	1.34	1.46
160	215	72.15	59	19.80	24	8.05	1.36	1.44
165	213	71.48	61	20.47	24	8.05	1.29	1.43
170	212	71.14	62	20.81	24	8.05	1.28	1.39
175	215	72.15	62	20.81	21	7.05	1.32	1.38
180	213	71.48	64	21.48	21	7.05	1.28	1.36
185	211	70.81	67	22.48	20	6.71	1.23	1.35
190	210	70.47	69	23.15	19	6.38	1.22	1.34
195	210	70.47	69	23.15	19	6.38	1.26	1.32
200	208	69.80	70	23.49	20	6.71	1.26	1.31
205	207	69.46	73	24.50	18	6.04	1.24	1.31
210	207	69.46	75	25.17	16	5.37	1.23	1.24
215	206	69.13	76	25.50	16	5.37	1.22	1.26
220	204	68.46	77	25.84	17	5.70	1.19	1.26
225	204	68.46	76	25.50	18	6.04	1.17	1.22
230	202	67.79	79	26.51	17	5.70	1.17	1.20
235	199	66.78	82	27.52	17	5.70	1.19	1.15
240	196	65.77	86	28.86	16	5.37	1.14	1.16

**BGEN Biogen Inc,  
Days Reported: 358**

Delay	One-Sided		No		Double		Average High	Average Low
	Breakout	Percent	Breakout	Percent	Breakout	Percent	Maximum	Maximum
15	178	49.72	2	0.56	178	49.72	\$2.73	\$2.66
20	196	54.75	3	0.84	159	44.41	2.57	2.45
25	222	62.01	6	1.68	130	36.31	2.58	2.33
30	239	66.76	7	1.96	112	31.28	2.41	2.20
35	253	70.67	11	3.07	94	26.26	2.33	2.15
40	256	71.51	15	4.19	87	24.30	2.24	2.22
45	257	71.79	20	5.59	81	22.63	2.21	2.23
50	267	74.58	23	6.42	68	18.99	2.13	2.17
55	271	75.70	26	7.26	61	17.04	2.08	2.12
60	276	77.09	30	8.38	52	14.53	1.98	2.08
65	274	76.54	35	9.78	49	13.69	1.89	2.08
70	278	77.65	38	10.61	42	11.73	1.84	2.03
75	276	77.09	42	11.73	40	11.17	1.83	1.99
80	277	77.37	44	12.29	37	10.34	1.80	1.94
85	276	77.09	45	12.57	37	10.34	1.78	1.89
95	269	75.14	57	15.92	32	8.94	1.74	1.84
95	269	75.14	57	15.92	32	8.94	1.74	1.84
100	267	74.58	61	17.04	30	8.38	1.71	1.82
105	266	74.30	64	17.88	28	7.82	1.70	1.80
110	266	74.30	64	17.88	28	7.82	1.69	1.77
115	267	74.58	64	17.88	27	7.54	1.67	1.75
120	263	73.46	69	19.27	26	7.26	1.65	1.71
125	263	73.46	69	19.27	26	7.26	1.61	1.68
130	260	72.63	72	20.11	26	7.26	1.62	1.63
135	259	72.35	75	20.95	24	6.70	1.60	1.61
140	259	72.35	78	21.79	21	5.87	1.61	1.57
145	255	71.23	82	22.91	21	5.87	1.62	1.57
150	254	70.95	84	23.46	20	5.59	1.62	1.53
155	255	71.23	85	23.74	18	5.03	1.59	1.51
160	254	70.95	87	24.30	17	4.75	1.56	1.51
165	257	71.79	87	24.30	14	3.91	1.51	1.48
170	252	70.39	91	25.42	15	4.19	1.52	1.47
175	249	69.55	95	26.54	14	3.91	1.45	1.48
180	247	68.99	98	27.37	13	3.63	1.41	1.45
185	244	68.16	102	28.49	12	3.35	1.39	1.46
190	243	67.88	104	29.05	11	3.07	1.38	1.47
195	236	65.92	110	30.73	12	3.35	1.40	1.45
200	231	64.53	115	32.12	12	3.35	1.38	1.43
205	229	63.97	119	33.24	10	2.79	1.38	1.43
210	227	63.41	120	33.52	11	3.07	1.36	1.42
215	227	63.41	122	34.08	9	2.51	1.36	1.45
220	224	62.57	125	34.92	9	2.51	1.35	1.43
225	223	62.29	126	35.20	9	2.51	1.33	1.42
230	222	62.01	128	35.75	8	2.23	1.32	1.39
235	218	60.89	132	36.87	8	2.23	1.30	1.39
240	215	60.06	134	37.43	9	2.51	1.29	1.39



**BRCD Brocade Communications Systems Inc.**  
**Days Reported: 217**

Delay	One-Sided		No		Double		Average High	Average Low
	Breakout	Percent	Breakout	Percent	Breakout	Percent	Maximum	Maximum
15	110	50.69	0	0.00	107	49.31	\$8.92	\$11.48
20	122	56.22	0	0.00	95	43.78	8.30	10.45
25	131	60.37	1	0.46	85	39.17	7.87	10.37
30	139	64.06	3	1.38	75	34.56	7.51	9.59
35	148	68.20	6	2.76	63	29.03	7.14	9.09
40	154	70.97	8	3.69	55	25.35	6.74	8.87
45	157	72.35	10	4.61	50	23.04	6.26	8.50
50	159	73.27	13	5.99	45	20.74	6.06	8.46
55	162	74.65	14	6.45	41	18.89	5.86	8.16
60	163	75.12	15	6.91	39	17.97	5.72	7.85
65	167	76.96	16	7.37	34	15.67	5.36	8.01
70	166	76.50	18	8.29	33	15.21	5.28	7.96
75	165	76.04	20	9.22	32	14.75	5.23	7.78
80	163	75.12	23	10.60	31	14.29	5.18	7.71
85	163	75.12	24	11.06	30	13.82	5.14	7.46
90	162	74.65	25	11.52	30	13.82	4.97	7.24
95	161	74.19	29	13.36	27	12.44	5.09	7.08
100	159	73.27	31	14.29	27	12.44	5.01	6.89
105	159	73.27	32	14.75	26	11.98	4.93	6.67
110	160	73.73	33	15.21	24	11.06	4.87	6.47
115	161	74.19	33	15.21	23	10.60	4.82	5.92
120	162	74.65	34	15.67	21	9.68	4.78	5.77
125	161	74.19	37	17.05	19	8.76	4.69	5.77
130	158	72.81	41	18.89	18	8.29	4.81	5.70
135	158	72.81	41	18.89	18	8.29	4.75	5.57
140	160	73.73	41	18.89	16	7.37	4.64	5.33
145	161	74.19	40	18.43	16	7.37	4.45	5.24
150	159	73.27	41	18.89	17	7.83	4.37	5.03
155	159	73.27	43	19.82	15	6.91	4.27	4.91
160	160	73.73	43	19.82	14	6.45	4.35	4.85
165	159	73.27	45	20.74	13	5.99	4.25	4.79
170	158	72.81	45	20.74	14	6.45	4.23	4.72
175	156	71.89	48	22.12	13	5.99	4.27	4.70
180	156	71.89	49	22.58	12	5.53	4.19	4.71
185	152	70.05	53	24.42	12	5.53	4.15	4.73
190	150	69.12	56	25.81	11	5.07	4.05	4.80
195	150	69.12	57	26.27	10	4.61	4.04	4.70
200	149	68.66	57	26.27	11	5.07	4.00	4.52
205	150	69.12	58	26.73	9	4.15	3.90	4.55
210	148	68.20	60	27.65	9	4.15	3.97	4.50
215	147	67.74	61	28.11	9	4.15	3.98	4.41
220	145	66.82	62	28.57	10	4.61	3.99	4.36
225	146	67.28	63	29.03	8	3.69	3.83	4.18
230	143	65.90	64	29.49	10	4.61	3.85	4.19
235	145	66.82	65	29.95	7	3.23	3.76	3.65
240	146	67.28	64	29.49	7	3.23	3.60	3.55

**BRCM    Broadcom Corporation**  
**Days Reported: 220**

Delay	One-Sided		No		Double		Average	Average
	Breakout	Percent	Breakout	Percent	Breakout	Percent	High Maximum	Low Maximum
15	109	49.55	0	0.00	111	50.45	\$9.00	\$10.97
20	115	52.27	1	0.45	104	47.27	8.68	10.18
25	123	55.91	1	0.45	96	43.64	8.05	9.64
30	134	60.91	2	0.91	84	38.18	8.15	9.17
35	144	65.45	3	1.36	73	33.18	7.87	9.32
40	151	68.64	6	2.73	63	28.64	7.49	9.40
45	155	70.45	7	3.18	58	26.36	7.17	9.21
50	158	71.82	7	3.18	55	25.00	6.75	8.88
55	160	72.73	8	3.64	52	23.64	6.52	8.53
60	162	73.64	9	4.09	49	22.27	6.37	8.35
65	164	74.55	9	4.09	47	21.36	6.08	8.13
70	170	77.27	10	4.55	40	18.18	5.63	7.74
75	170	77.27	11	5.00	39	17.73	5.49	7.54
80	167	75.91	15	6.82	38	17.27	5.39	7.38
85	170	77.27	16	7.27	34	15.45	5.31	7.17
95	165	75.00	25	11.36	30	13.64	5.32	6.82
95	165	75.00	25	11.36	30	13.64	5.32	6.82
100	166	75.45	24	10.91	30	13.64	5.17	6.87
105	165	75.00	26	11.82	29	13.18	5.07	6.54
110	164	74.55	28	12.73	28	12.73	5.10	6.39
115	160	72.73	32	14.55	28	12.73	5.05	6.43
120	158	71.82	36	16.36	26	11.82	5.03	6.49
125	158	71.82	38	17.27	24	10.91	5.27	6.34
130	161	73.18	38	17.27	21	9.55	5.23	6.31
135	161	73.18	38	17.27	21	9.55	5.12	6.27
140	162	73.64	38	17.27	20	9.09	5.01	6.17
145	163	74.09	38	17.27	19	8.64	4.93	6.09
150	163	74.09	40	18.18	17	7.73	4.99	5.90
155	164	74.55	40	18.18	16	7.27	4.91	5.80
160	163	74.09	42	19.09	15	6.82	4.93	5.84
165	163	74.09	43	19.55	14	6.36	4.75	5.81
170	162	73.64	44	20.00	14	6.36	4.77	5.79
175	162	73.64	44	20.00	14	6.36	4.76	5.71
180	162	73.64	44	20.00	14	6.36	4.75	5.64
185	160	72.73	46	20.91	14	6.36	4.75	5.53
190	158	71.82	48	21.82	14	6.36	4.78	5.44
195	157	71.36	49	22.27	14	6.36	4.74	5.39
200	158	71.82	49	22.27	13	5.91	4.64	5.27
205	158	71.82	50	22.73	12	5.45	4.58	5.22
210	158	71.82	50	22.73	12	5.45	4.54	5.17
215	159	72.27	50	22.73	11	5.00	4.51	5.08
220	161	73.18	50	22.73	9	4.09	4.40	5.03
225	160	72.73	51	23.18	9	4.09	4.34	4.94
230	159	72.27	52	23.64	9	4.09	4.29	4.89
235	159	72.27	53	24.09	8	3.64	4.26	4.82
240	159	72.27	53	24.09	8	3.64	4.16	4.72

**CHKP Check Point Software**  
**Days Reported: 212**

One-Sided			No		Double		Average High	Average Low
Delay	Breakout	Percent	Breakout	Percent	Breakout	Percent	Maximum	Maximum
15	111	52.36	1	0.47	100	47.17	\$10.24	\$9.14
20	124	58.49	1	0.47	87	41.04	9.61	8.12
25	134	63.21	1	0.47	77	36.32	9.04	7.32
30	143	67.45	3	1.42	66	31.13	8.57	6.84
35	146	68.87	5	2.36	61	28.77	8.40	6.81
40	152	71.70	6	2.83	54	25.47	7.98	6.62
45	156	73.58	9	4.25	47	22.17	7.67	6.66
50	158	74.53	12	5.66	42	19.81	7.41	6.56
55	160	75.47	14	6.60	38	17.92	7.11	6.50
60	159	75.00	15	7.08	38	17.92	6.84	6.43
65	159	75.00	18	8.49	35	16.51	6.74	6.38
70	160	75.47	20	9.43	32	15.09	6.43	6.18
75	163	76.89	23	10.85	26	12.26	6.42	6.02
80	165	77.83	23	10.85	24	11.32	6.21	5.86
85	166	78.30	23	10.85	23	10.85	6.01	5.72
95	166	78.30	26	12.26	20	9.43	5.80	5.32
95	166	78.30	26	12.26	20	9.43	5.80	5.32
100	165	77.83	28	13.21	19	8.96	5.80	5.37
105	163	76.89	28	13.21	21	9.91	5.74	5.28
110	165	77.83	29	13.68	18	8.49	5.61	5.14
115	162	76.42	31	14.62	19	8.96	5.47	5.11
120	162	76.42	33	15.57	17	8.02	5.49	5.19
125	161	75.94	33	15.57	18	8.49	5.47	5.29
130	161	75.94	35	16.51	16	7.55	5.44	4.98
135	159	75.00	37	17.45	16	7.55	5.38	5.13
140	160	75.47	37	17.45	15	7.08	5.33	4.78
145	158	74.53	39	18.40	15	7.08	5.32	4.94
150	157	74.06	38	17.92	17	8.02	5.22	4.77
155	158	74.53	40	18.87	14	6.60	5.20	4.74
160	157	74.06	40	18.87	15	7.08	5.05	4.70
165	156	73.58	43	20.28	13	6.13	5.09	4.62
170	158	74.53	43	20.28	11	5.19	4.96	4.67
175	158	74.53	43	20.28	11	5.19	4.81	4.55
180	158	74.53	44	20.75	10	4.72	4.77	4.45
185	159	75.00	45	21.23	8	3.77	4.69	4.45
190	157	74.06	45	21.23	10	4.72	4.64	4.31
195	155	73.11	49	23.11	8	3.77	4.64	4.46
200	154	72.64	49	23.11	9	4.25	4.49	4.50
205	153	72.17	51	24.06	8	3.77	4.43	4.07
210	150	70.75	54	25.47	8	3.77	4.42	3.94
215	150	70.75	55	25.94	7	3.30	4.35	3.91
220	150	70.75	54	25.47	8	3.77	4.34	4.02
225	154	72.64	54	25.47	4	1.89	4.31	3.94
230	154	72.64	55	25.94	3	1.42	4.27	3.86
235	152	71.70	56	26.42	4	1.89	4.20	3.78
240	152	71.70	57	26.89	3	1.42	4.21	3.77

**CMVT Comverse Technology Inc**  
**Days Reported: 222**

Delay	One-Sided		No		Double		Average High	Average Low
	Breakout	Percent	Breakout	Percent	Breakout	Percent	Maximum	Maximum
15	114	51.35	1	0.45	107	48.20	\$4.83	\$5.72
20	128	57.66	2	0.90	92	41.44	4.75	5.74
25	143	64.41	2	0.90	77	34.68	4.60	5.36
30	146	65.77	6	2.70	70	31.53	4.66	5.23
35	155	69.82	6	2.70	61	27.48	4.36	5.15
40	159	71.62	7	3.15	56	25.23	4.30	4.99
45	162	72.97	7	3.15	53	23.87	4.15	4.78
50	168	75.68	7	3.15	47	21.17	4.08	4.43
55	170	76.58	9	4.05	43	19.37	3.97	4.22
60	171	77.03	11	4.95	40	18.02	3.87	4.06
65	171	77.03	13	5.86	38	17.12	3.75	4.00
70	166	74.77	19	8.56	37	16.67	3.78	4.00
75	163	73.42	23	10.36	36	16.22	3.72	4.02
80	162	72.97	25	11.26	35	15.77	3.62	3.97
85	166	74.77	28	12.61	28	12.61	3.68	3.85
95	171	77.03	29	13.06	22	9.91	3.60	3.55
95	171	77.03	29	13.06	22	9.91	3.60	3.55
100	169	76.13	32	14.41	21	9.46	3.68	3.67
105	170	76.58	32	14.41	20	9.01	3.60	3.62
110	172	77.48	32	14.41	18	8.11	3.53	3.61
115	169	76.13	35	15.77	18	8.11	3.48	3.63
120	169	76.13	35	15.77	18	8.11	3.45	3.60
125	168	75.68	36	16.22	18	8.11	3.41	3.56
130	168	75.68	37	16.67	17	7.66	3.36	3.52
135	168	75.68	37	16.67	17	7.66	3.25	3.51
140	167	75.23	39	17.57	16	7.21	3.32	3.49
145	167	75.23	40	18.02	15	6.76	3.31	3.50
150	167	75.23	41	18.47	14	6.31	3.32	3.43
155	167	75.23	42	18.92	13	5.86	3.24	3.42
160	167	75.23	43	19.37	12	5.41	3.26	3.39
165	166	74.77	45	20.27	11	4.95	3.24	3.40
170	162	72.97	49	22.07	11	4.95	3.23	3.47
175	160	72.07	52	23.42	10	4.50	3.24	3.42
180	158	71.17	54	24.32	10	4.50	3.40	3.48
185	158	71.17	56	25.23	8	3.60	3.13	3.48
190	157	70.72	56	25.23	9	4.05	3.13	3.45
195	157	70.72	57	25.68	8	3.60	3.02	3.44
200	158	71.17	56	25.23	8	3.60	2.98	3.53
205	157	70.72	58	26.13	7	3.15	3.00	3.48
210	159	71.62	58	26.13	5	2.25	2.92	3.38
215	159	71.62	58	26.13	5	2.25	2.87	3.33
220	159	71.62	58	26.13	5	2.25	2.79	3.27
225	158	71.17	58	26.13	6	2.70	2.94	3.17
230	157	70.72	61	27.48	4	1.80	2.79	3.15
235	155	69.82	62	27.93	5	2.25	2.74	3.09
240	155	69.82	63	28.38	4	1.80	2.73	3.06

**DCLK DoubleClick Inc**  
**Days Reported: 219**

Delay	One-Sided		No		Double		Average High	Average Low
	Breakout	Percent	Breakout	Percent	Breakout	Percent	Maximum	Maximum
15	139	63.47	2	0.91	78	35.62	\$4.40	\$3.34
20	142	64.84	6	2.74	71	32.42	4.34	3.21
25	150	68.49	10	4.57	59	26.94	4.06	3.14
30	153	69.86	12	5.48	54	24.66	3.91	3.01
35	153	69.86	14	6.39	52	23.74	3.77	2.94
40	154	70.32	20	9.13	45	20.55	3.63	2.88
45	156	71.23	23	10.50	40	18.26	3.46	2.73
50	158	72.15	25	11.42	36	16.44	3.45	2.61
55	162	73.97	25	11.42	32	14.61	3.28	2.55
60	161	73.52	27	12.33	31	14.16	3.23	2.48
65	161	73.52	29	13.24	29	13.24	3.13	2.40
70	159	72.60	34	15.53	26	11.87	3.06	2.42
75	158	72.15	36	16.44	25	11.42	3.11	2.38
80	157	71.69	38	17.35	24	10.96	3.00	2.37
85	159	72.60	39	17.81	21	9.59	2.95	2.32
95	155	70.78	44	20.09	20	9.13	2.93	2.23
95	155	70.78	44	20.09	20	9.13	2.93	2.23
100	156	71.23	45	20.55	18	8.22	2.95	2.15
105	155	70.78	47	21.46	17	7.76	2.94	2.11
110	153	69.86	50	22.83	16	7.31	3.00	2.07
115	150	68.49	53	24.20	16	7.31	2.94	2.08
120	152	69.41	53	24.20	14	6.39	2.86	2.06
125	150	68.49	55	25.11	14	6.39	2.86	2.01
130	148	67.58	57	26.03	14	6.39	2.87	1.98
135	147	67.12	58	26.48	14	6.39	2.82	1.97
140	146	66.67	60	27.40	13	5.94	2.84	1.98
145	145	66.21	61	27.85	13	5.94	2.79	1.99
150	146	66.67	62	28.31	11	5.02	2.76	1.97
155	147	67.12	62	28.31	10	4.57	2.75	1.96
160	146	66.67	62	28.31	11	5.02	2.76	1.91
165	147	67.12	62	28.31	10	4.57	2.73	1.90
170	147	67.12	63	28.77	9	4.11	2.68	1.88
175	147	67.12	64	29.22	8	3.65	2.67	1.86
180	149	68.04	64	29.22	6	2.74	2.62	1.83
185	147	67.12	66	30.14	6	2.74	2.68	1.80
190	146	66.67	68	31.05	5	2.28	2.67	1.81
195	146	66.67	69	31.51	4	1.83	2.62	1.77
200	144	65.75	71	32.42	4	1.83	2.63	1.78
205	142	64.84	73	33.33	4	1.83	2.63	1.80
210	142	64.84	74	33.79	3	1.37	2.62	1.81
215	140	63.93	75	34.25	4	1.83	2.63	1.75
220	139	63.47	76	34.70	4	1.83	2.62	1.76
225	141	64.38	76	34.70	2	0.91	2.60	1.75
230	140	63.93	77	35.16	2	0.91	2.60	1.68
235	138	63.01	79	36.07	2	0.91	2.58	1.68
240	135	61.64	82	37.44	2	0.91	2.63	1.68

**DNA Genentech Inc.**  
**Days Reported: 192**

Delay	One-Sided		No		Double		Average	Average
	Breakout	Percent	Breakout	Percent	Breakout	Percent	High Maximum	Low Maximum
15	84	43.75	0	0.00	108	56.25	\$6.29	\$7.62
20	99	51.56	1	0.52	92	47.92	5.65	7.10
25	107	55.73	1	0.52	84	43.75	5.25	6.61
30	110	57.29	3	1.56	79	41.15	5.27	6.68
35	117	60.94	4	2.08	71	36.98	5.06	6.51
40	123	64.06	4	2.08	65	33.85	4.57	6.14
45	131	68.23	4	2.08	57	29.69	4.32	6.05
50	130	67.71	8	4.17	54	28.13	4.66	5.80
55	130	67.71	8	4.17	54	28.13	4.42	5.66
60	135	70.31	10	5.21	47	24.48	4.25	5.48
65	135	70.31	12	6.25	45	23.44	4.24	5.38
70	135	70.31	15	7.81	42	21.88	4.26	5.09
75	139	72.40	16	8.33	37	19.27	4.16	4.96
80	135	70.31	17	8.85	40	20.83	3.88	4.85
85	137	71.35	18	9.38	37	19.27	3.88	4.87
95	136	70.83	18	9.38	38	19.79	3.66	4.48
95	136	70.83	18	9.38	38	19.79	3.66	4.48
100	137	71.35	19	9.90	36	18.75	3.61	4.58
105	135	70.31	22	11.46	35	18.23	3.45	4.17
110	132	68.75	26	13.54	34	17.71	3.29	4.33
115	126	65.63	32	16.67	34	17.71	3.45	4.20
120	127	66.15	34	17.71	31	16.15	3.25	4.25
125	126	65.63	38	19.79	28	14.58	3.32	4.25
130	129	67.19	37	19.27	26	13.54	3.37	4.24
135	131	68.23	37	19.27	24	12.50	3.37	4.14
140	130	67.71	41	21.35	21	10.94	3.28	4.09
145	131	68.23	41	21.35	20	10.42	3.15	4.16
150	132	68.75	39	20.31	21	10.94	3.14	4.10
155	132	68.75	43	22.40	17	8.85	3.20	4.20
160	134	69.79	43	22.40	15	7.81	3.17	4.16
165	131	68.23	46	23.96	15	7.81	3.03	4.18
170	132	68.75	45	23.44	15	7.81	3.23	3.98
175	131	68.23	48	25.00	13	6.77	3.23	3.86
180	130	67.71	48	25.00	14	7.29	2.97	3.76
185	130	67.71	50	26.04	12	6.25	2.97	3.79
190	127	66.15	55	28.65	10	5.21	3.06	3.75
195	126	65.63	56	29.17	10	5.21	3.00	3.50
200	124	64.58	58	30.21	10	5.21	2.99	3.56
205	120	62.50	61	31.77	11	5.73	2.81	3.75
210	123	64.06	63	32.81	6	3.13	2.78	3.78
215	121	63.02	66	34.38	5	2.60	2.80	3.74
220	122	63.54	65	33.85	5	2.60	2.79	4.08
225	120	62.50	67	34.90	5	2.60	2.58	4.04
230	119	61.98	68	35.42	5	2.60	2.63	3.64
235	114	59.38	73	38.02	5	2.60	2.62	3.39
240	113	58.85	75	39.06	4	2.08	2.72	3.45

**EMC EMC Corporation**  
**Days Reported: 323**

Delay	One-Sided		No		Double		Average High	Average Low
	Breakout	Percent	Breakout	Percent	Breakout	Percent	Maximum	Maximum
15	131	40.56	2	0.62	190	58.82	\$3.21	\$3.38
20	155	47.99	2	0.62	166	51.39	3.02	3.38
25	166	51.39	2	0.62	155	47.99	2.77	3.17
30	179	55.42	2	0.62	142	43.96	2.59	3.06
35	188	58.20	2	0.62	133	41.18	2.47	2.88
40	202	62.54	3	0.93	118	36.53	2.41	2.80
45	217	67.18	3	0.93	103	31.89	2.31	2.71
50	219	67.80	5	1.55	99	30.65	2.31	2.62
55	223	69.04	7	2.17	93	28.79	2.24	2.51
60	226	69.97	10	3.10	87	26.93	2.12	2.42
65	225	69.66	13	4.02	85	26.32	2.06	2.40
70	225	69.66	15	4.64	83	25.70	2.06	2.28
75	227	70.28	17	5.26	79	24.46	1.99	2.15
80	226	69.97	21	6.50	76	23.53	1.93	2.11
85	227	70.28	23	7.12	73	22.60	1.85	2.04
95	235	72.76	26	8.05	62	19.20	1.78	1.97
95	235	72.76	26	8.05	62	19.20	1.78	1.97
100	239	73.99	27	8.36	57	17.65	1.72	2.22
105	242	74.92	29	8.98	52	16.10	1.72	2.21
110	245	75.85	30	9.29	48	14.86	1.70	2.12
115	245	75.85	31	9.60	47	14.55	1.69	2.08
120	248	76.78	33	10.22	42	13.00	1.64	2.09
125	245	75.85	39	12.07	39	12.07	1.63	2.06
130	243	75.23	41	12.69	39	12.07	1.62	2.04
135	244	75.54	41	12.69	38	11.76	1.63	2.01
140	244	75.54	45	13.93	34	10.53	1.61	1.98
145	243	75.23	48	14.86	32	9.91	1.55	1.94
150	244	75.54	49	15.17	30	9.29	1.50	1.93
155	244	75.54	51	15.79	28	8.67	1.50	1.88
160	242	74.92	53	16.41	28	8.67	1.49	1.86
165	240	74.30	57	17.65	26	8.05	1.46	1.88
170	239	73.99	60	18.58	24	7.43	1.42	1.88
175	239	73.99	61	18.89	23	7.12	1.40	1.85
180	239	73.99	61	18.89	23	7.12	1.38	1.83
185	239	73.99	63	19.50	21	6.50	1.36	1.81
190	240	74.30	63	19.50	20	6.19	1.34	1.80
195	235	72.76	67	20.74	21	6.50	1.34	1.82
200	235	72.76	69	21.36	19	5.88	1.34	1.78
205	235	72.76	70	21.67	18	5.57	1.31	1.80
210	233	72.14	72	22.29	18	5.57	1.31	1.78
215	235	72.76	73	22.60	15	4.64	1.29	1.80
220	231	71.52	76	23.53	16	4.95	1.29	1.79
225	228	70.59	80	24.77	15	4.64	1.28	1.71
230	227	70.28	83	25.70	13	4.02	1.27	1.67
235	226	69.97	85	26.32	12	3.72	1.25	1.66
240	225	69.66	86	26.63	12	3.72	1.24	1.64

**INKT Inktomi Corporation**  
**Days Reported: 220**

	<b>One-Sided</b>		<b>No</b>		<b>Double</b>		<b>Average</b>	<b>Average</b>
<b>Delay</b>	<b>Breakout</b>	<b>Percent</b>	<b>Breakout</b>	<b>Percent</b>	<b>Breakout</b>	<b>Percent</b>	<b>High</b>	<b>Low</b>
							<b>Maximum</b>	<b>Maximum</b>
15	112	50.91	0	0.00	108	49.09	\$7.14	\$6.07
20	123	55.91	4	1.82	93	42.27	7.44	6.19
25	127	57.73	7	3.18	86	39.09	6.95	6.02
30	135	61.36	9	4.09	76	34.55	6.72	5.80
35	140	63.64	11	5.00	69	31.36	6.48	5.62
40	148	67.27	12	5.45	60	27.27	6.08	5.30
45	154	70.00	16	7.27	50	22.73	5.89	5.19
50	161	73.18	16	7.27	43	19.55	5.66	4.90
55	164	74.55	17	7.73	39	17.73	5.62	4.69
60	167	75.91	19	8.64	34	15.45	5.50	4.59
65	168	76.36	20	9.09	32	14.55	5.15	4.53
70	172	78.18	20	9.09	28	12.73	4.81	4.49
75	173	78.64	22	10.00	25	11.36	4.72	4.31
80	173	78.64	25	11.36	22	10.00	4.72	4.10
85	173	78.64	28	12.73	19	8.64	4.78	3.97
90	171	77.73	30	13.64	19	8.64	4.75	3.90
95	171	77.73	30	13.64	19	8.64	4.66	3.83
100	168	76.36	34	15.45	18	8.18	4.68	3.80
105	168	76.36	35	15.91	17	7.73	4.53	3.65
110	169	76.82	37	16.82	14	6.36	4.78	3.56
115	168	76.36	38	17.27	14	6.36	4.69	3.53
120	169	76.82	38	17.27	13	5.91	4.59	3.40
125	171	77.73	38	17.27	11	5.00	4.48	3.29
130	170	77.27	40	18.18	10	4.55	4.42	3.50
135	171	77.73	40	18.18	9	4.09	4.26	3.44
140	169	76.82	42	19.09	9	4.09	4.24	3.32
145	167	75.91	44	20.00	9	4.09	4.23	3.26
150	165	75.00	46	20.91	9	4.09	4.20	3.29
155	164	74.55	46	20.91	10	4.55	4.22	3.25
160	162	73.64	50	22.73	8	3.64	4.09	3.28
165	162	73.64	51	23.18	7	3.18	4.02	3.20
170	159	72.27	53	24.09	8	3.64	4.02	3.20
175	160	72.73	53	24.09	7	3.18	3.94	3.15
180	162	73.64	53	24.09	5	2.27	3.82	3.05
185	163	74.09	53	24.09	4	1.82	3.76	3.11
190	161	73.18	55	25.00	4	1.82	3.71	3.13
195	157	71.36	58	26.36	5	2.27	3.74	3.11
200	154	70.00	61	27.73	5	2.27	3.79	3.03
205	156	70.91	61	27.73	3	1.36	3.67	3.11
210	156	70.91	61	27.73	3	1.36	3.60	3.08
215	155	70.45	63	28.64	2	0.91	3.57	3.09
220	155	70.45	63	28.64	2	0.91	3.52	3.03
225	154	70.00	64	29.09	2	0.91	3.46	3.01
230	151	68.64	67	30.45	2	0.91	3.46	2.96
235	152	69.09	67	30.45	1	0.45	3.40	2.94
240	152	69.09	67	30.45	1	0.45	3.20	2.89



**ITWO i2 Technologies Inc.**  
**Days Reported: 224**

Delay	One-Sided		No		Double		Average High	Average Low
	Breakout	Percent	Breakout	Percent	Breakout	Percent	Maximum	Maximum
15	116	51.79	0	0.00	108	48.21	\$8.82	\$9.95
20	130	58.04	2	0.89	92	41.07	8.41	8.74
25	144	64.29	4	1.79	76	33.93	8.01	8.48
30	154	68.75	5	2.23	65	29.02	7.65	8.46
35	156	69.64	8	3.57	60	26.79	7.32	8.52
40	161	71.88	8	3.57	55	24.55	6.88	7.96
45	161	71.88	10	4.46	53	23.66	6.79	7.79
50	165	73.66	11	4.91	48	21.43	6.92	7.61
55	169	75.45	11	4.91	44	19.64	6.77	7.22
60	172	76.79	13	5.80	39	17.41	6.63	7.04
65	176	78.57	13	5.80	35	15.63	6.40	6.78
70	176	78.57	14	6.25	34	15.18	6.11	6.64
75	176	78.57	16	7.14	32	14.29	5.94	6.45
80	179	79.91	18	8.04	27	12.05	5.92	6.19
85	179	79.91	20	8.93	25	11.16	5.80	6.18
90	180	80.36	21	9.38	23	10.27	5.64	6.07
95	182	81.25	23	10.27	19	8.48	5.46	6.04
100	181	80.80	26	11.61	17	7.59	5.49	5.89
105	182	81.25	27	12.05	15	6.70	5.45	5.79
110	183	81.70	27	12.05	14	6.25	5.26	5.78
115	183	81.70	28	12.50	13	5.80	5.09	5.92
120	181	80.80	31	13.84	12	5.36	5.02	5.85
125	182	81.25	31	13.84	11	4.91	4.89	5.68
130	180	80.36	34	15.18	10	4.46	4.86	5.61
135	178	79.46	36	16.07	10	4.46	4.88	5.47
140	174	77.68	41	18.30	9	4.02	4.81	5.64
145	173	77.23	42	18.75	9	4.02	4.77	5.64
150	172	76.79	43	19.20	9	4.02	4.78	5.37
155	169	75.45	46	20.54	9	4.02	4.72	5.48
160	168	75.00	48	21.43	8	3.57	4.77	5.37
165	169	75.45	48	21.43	7	3.13	4.61	5.25
170	168	75.00	49	21.88	7	3.13	4.62	5.22
175	168	75.00	49	21.88	7	3.13	4.56	5.17
180	167	74.55	50	22.32	7	3.13	4.50	5.15
185	167	74.55	50	22.32	7	3.13	4.39	5.13
190	168	75.00	50	22.32	6	2.68	4.36	5.05
195	167	74.55	51	22.77	6	2.68	4.32	5.02
200	166	74.11	51	22.77	7	3.13	4.23	4.94
205	165	73.66	53	23.66	6	2.68	4.34	4.74
210	163	72.77	55	24.55	6	2.68	4.12	4.70
215	163	72.77	55	24.55	6	2.68	3.97	4.58
220	162	72.32	56	25.00	6	2.68	3.91	4.51
225	162	72.32	56	25.00	6	2.68	3.89	4.43
230	161	71.88	57	25.45	6	2.68	3.86	4.15
235	159	70.98	59	26.34	6	2.68	3.80	4.12
240	158	70.54	60	26.79	6	2.68	3.77	4.44

**JDSU JDS Uniphase Corporation**  
**Days Reported: 293**

Delay	One-Sided		No		Double		Average	Average
	Breakout	Percent	Breakout	Percent	Breakout	Percent	High Maximum	Low Maximum
15	158	53.92	2	0.68	133	45.39	\$7.30	\$7.32
20	175	59.73	2	0.68	116	39.59	6.80	6.48
25	188	64.16	3	1.02	102	34.81	6.25	6.14
30	199	67.92	6	2.05	88	30.03	5.85	5.81
35	201	68.60	7	2.39	85	29.01	5.57	5.44
40	208	70.99	9	3.07	76	25.94	5.25	5.11
45	211	72.01	15	5.12	67	22.87	4.87	5.06
50	212	72.35	18	6.14	63	21.50	4.79	4.87
55	218	74.40	20	6.83	55	18.77	4.54	4.67
60	220	75.09	22	7.51	51	17.41	4.47	4.38
65	220	75.09	24	8.19	49	16.72	4.40	4.31
70	220	75.09	26	8.87	47	16.04	4.30	4.28
75	219	74.74	29	9.90	45	15.36	4.20	4.22
80	217	74.06	32	10.92	44	15.02	4.25	4.11
85	216	73.72	33	11.26	44	15.02	4.25	4.03
95	218	74.40	35	11.95	40	13.65	4.12	3.98
95	218	74.40	35	11.95	40	13.65	4.12	3.98
100	217	74.06	38	12.97	38	12.97	4.12	3.99
105	225	76.79	38	12.97	30	10.24	3.97	3.84
110	225	76.79	40	13.65	28	9.56	4.01	3.76
115	221	75.43	44	15.02	28	9.56	4.10	3.72
120	222	75.77	44	15.02	27	9.22	4.07	3.65
125	219	74.74	47	16.04	27	9.22	4.04	3.65
130	218	74.40	49	16.72	26	8.87	4.00	3.71
135	218	74.40	51	17.41	24	8.19	3.95	3.59
140	218	74.40	51	17.41	24	8.19	3.90	3.54
145	219	74.74	53	18.09	21	7.17	3.95	3.46
150	219	74.74	55	18.77	19	6.48	3.94	3.40
155	218	74.40	57	19.45	18	6.14	4.01	3.35
160	216	73.72	59	20.14	18	6.14	3.96	3.35
165	214	73.04	61	20.82	18	6.14	3.80	3.36
170	210	71.67	65	22.18	18	6.14	3.77	3.43
175	208	70.99	68	23.21	17	5.80	3.89	3.41
180	207	70.65	70	23.89	16	5.46	3.88	3.39
185	205	69.97	72	24.57	16	5.46	3.90	3.35
190	206	70.31	74	25.26	13	4.44	3.84	3.31
195	207	70.65	75	25.60	11	3.75	3.72	3.26
200	205	69.97	77	26.28	11	3.75	3.72	3.24
205	205	69.97	77	26.28	11	3.75	3.69	3.15
210	206	70.31	77	26.28	10	3.41	3.66	3.10
215	203	69.28	80	27.30	10	3.41	3.57	3.05
220	204	69.62	80	27.30	9	3.07	3.46	2.95
225	202	68.94	83	28.33	8	2.73	3.41	2.97
230	200	68.26	85	29.01	8	2.73	3.39	2.88
235	198	67.58	87	29.69	8	2.73	3.35	2.79
240	194	66.21	91	31.06	8	2.73	3.29	2.83

**LVLTL Level 3 Communications Inc.**  
**Days Reported: 183**

Delay	One-Sided		No		Double		Average	Average
	Breakout	Percent	Breakout	Percent	Breakout	Percent	High Maximum	Low Maximum
15	91	49.73	0	0.00	92	50.27	\$4.12	\$4.34
20	99	53.80	1	0.54	84	45.65	3.56	3.98
25	111	60.66	1	0.55	71	38.80	3.38	3.66
30	118	64.13	3	1.63	63	34.24	3.22	3.39
35	116	63.39	7	3.83	60	32.79	3.21	3.17
40	122	66.30	9	4.89	53	28.80	3.19	2.93
45	126	68.85	12	6.56	45	24.59	2.98	2.85
50	128	69.57	14	7.61	42	22.83	2.79	2.75
55	133	72.68	14	7.65	36	19.67	2.66	2.76
60	137	74.46	15	8.15	32	17.39	2.58	2.70
65	137	74.86	16	8.74	30	16.39	2.60	2.64
70	138	75.00	17	9.24	29	15.76	2.48	2.55
75	137	74.86	20	10.93	26	14.21	2.44	2.53
80	139	75.54	21	11.41	24	13.04	2.37	2.48
85	138	75.41	21	11.48	24	13.11	2.29	2.43
95	134	72.83	27	14.67	23	12.50	2.06	2.43
100	133	72.28	29	15.76	22	11.96	2.07	2.40
105	132	72.13	31	16.94	20	10.93	2.07	2.39
110	134	72.83	31	16.85	19	10.33	2.07	2.33
115	133	72.68	31	16.94	19	10.38	2.04	2.32
120	136	73.91	31	16.85	17	9.24	1.98	2.30
125	133	72.68	33	18.03	17	9.29	1.96	2.31
130	134	72.83	33	17.93	17	9.24	1.96	2.30
135	133	72.68	35	19.13	15	8.20	1.98	2.27
140	133	72.28	36	19.57	15	8.15	1.95	2.25
145	132	72.13	36	19.67	15	8.20	1.95	2.22
150	134	72.83	38	20.65	12	6.52	1.99	2.23
155	133	72.68	38	20.77	12	6.56	1.99	2.20
160	133	72.28	39	21.20	12	6.52	1.95	2.19
165	133	72.68	39	21.31	11	6.01	1.90	2.12
170	135	73.37	38	20.65	11	5.98	1.87	2.15
175	132	72.13	40	21.86	11	6.01	1.82	2.11
180	133	72.28	40	21.74	11	5.98	1.81	2.09
185	132	72.13	40	21.86	11	6.01	1.79	2.08
190	131	71.20	42	22.83	11	5.98	1.81	2.06
195	129	70.49	43	23.50	11	6.01	1.81	2.04
200	132	71.74	43	23.37	9	4.89	1.79	1.99
205	131	71.58	43	23.50	9	4.92	1.78	1.92
210	129	70.11	46	25.00	9	4.89	1.78	1.86
215	127	69.40	48	26.23	8	4.37	1.77	1.82
220	127	69.02	49	26.63	8	4.35	1.78	1.73
225	124	67.76	50	27.32	9	4.92	1.77	1.71
230	124	67.39	51	27.72	9	4.89	1.77	1.61
235	122	66.67	54	29.51	7	3.83	1.75	1.58
240	121	65.76	55	29.89	8	4.35	1.75	1.56

**MU Micron Technology Inc.**  
**Days Reported: 459**

Delay	One-Sided		No		Double		Average High	Average Low
	Breakout	Percent	Breakout	Percent	Breakout	Percent	Maximum	Maximum
15	210	45.75	1	0.22	248	54.03	\$3.23	\$2.85
20	240	52.29	2	0.44	217	47.28	2.87	2.81
25	268	58.39	3	0.65	188	40.96	2.65	2.70
30	281	61.22	8	1.74	170	37.04	2.49	2.59
35	303	66.01	9	1.96	147	32.03	2.48	2.53
40	323	70.37	12	2.61	124	27.02	2.32	2.48
45	330	71.90	17	3.70	112	24.40	2.29	2.34
50	336	73.20	20	4.36	103	22.44	2.19	2.27
55	341	74.29	23	5.01	95	20.70	2.12	2.22
60	348	75.82	28	6.10	83	18.08	2.05	2.18
65	360	78.43	29	6.32	70	15.25	1.96	2.11
70	359	78.21	33	7.19	67	14.60	1.92	2.08
75	358	78.00	37	8.06	64	13.94	1.88	2.04
80	356	77.56	42	9.15	61	13.29	1.85	2.05
85	361	78.65	43	9.37	55	11.98	1.83	2.01
90	358	78.00	49	10.68	52	11.33	1.80	1.99
95	358	78.00	52	11.33	49	10.68	1.80	1.97
100	358	78.00	55	11.98	46	10.02	1.75	1.95
105	356	77.56	57	12.42	46	10.02	1.72	1.93
110	350	76.25	65	14.16	44	9.59	1.70	1.94
115	348	75.82	72	15.69	39	8.50	1.69	1.92
120	349	76.03	75	16.34	35	7.63	1.64	1.88
125	342	74.51	83	18.08	34	7.41	1.63	1.88
130	344	74.95	84	18.30	31	6.75	1.59	1.85
135	342	74.51	86	18.74	31	6.75	1.56	1.81
140	342	74.51	89	19.39	28	6.10	1.53	1.78
145	339	73.86	93	20.26	27	5.88	1.52	1.78
150	339	73.86	94	20.48	26	5.66	1.50	1.75
155	333	72.55	100	21.79	26	5.66	1.52	1.74
160	332	72.33	103	22.44	24	5.23	1.51	1.78
165	329	71.68	106	23.09	24	5.23	1.49	1.76
170	327	71.24	109	23.75	23	5.01	1.48	1.71
175	330	71.90	110	23.97	19	4.14	1.44	1.67
180	329	71.68	112	24.40	18	3.92	1.43	1.65
185	330	71.90	112	24.40	17	3.70	1.42	1.66
190	328	71.46	114	24.84	17	3.70	1.42	1.62
195	324	70.59	118	25.71	17	3.70	1.41	1.61
200	322	70.15	120	26.14	17	3.70	1.39	1.49
205	320	69.72	124	27.02	15	3.27	1.41	1.45
210	316	68.85	129	28.10	14	3.05	1.41	1.45
215	317	69.06	130	28.32	12	2.61	1.38	1.43
220	317	69.06	130	28.32	12	2.61	1.34	1.40
225	317	69.06	132	28.76	10	2.18	1.32	1.35
230	313	68.19	136	29.63	10	2.18	1.32	1.34
235	310	67.54	139	30.28	10	2.18	1.31	1.31
240	309	67.32	141	30.72	9	1.96	1.28	1.28

**NKE Nike Inc.**  
**Days Reported: 469**

Delay	One-Sided		No		Double		Average High	Average Low
	Breakout	Percent	Breakout	Percent	Breakout	Percent	Maximum	Maximum
15	240	51.17	3	0.64	226	48.19	\$1.37	\$1.37
20	270	57.57	6	1.28	193	41.15	1.28	1.28
25	288	61.41	11	2.35	170	36.25	1.26	1.22
30	303	64.61	12	2.56	154	32.84	1.25	1.14
35	316	67.38	15	3.20	138	29.42	1.17	1.11
40	320	68.23	20	4.26	129	27.51	1.12	1.06
45	329	70.15	23	4.90	117	24.95	1.10	1.00
50	338	72.07	25	5.33	106	22.60	1.04	0.98
55	337	71.86	32	6.82	100	21.32	1.03	0.97
60	340	72.49	36	7.68	93	19.83	0.99	0.96
65	342	72.92	38	8.10	89	18.98	0.97	0.94
70	342	72.92	46	9.81	81	17.27	0.98	0.94
75	346	73.77	48	10.23	75	15.99	0.95	0.91
80	347	73.99	52	11.09	70	14.93	0.95	0.90
85	343	73.13	56	11.94	70	14.93	0.94	0.88
90	347	73.99	60	12.79	62	13.22	0.91	0.88
95	351	74.84	62	13.22	56	11.94	0.89	0.86
100	348	74.20	67	14.29	54	11.51	0.87	0.85
105	346	73.77	74	15.78	49	10.45	0.85	0.86
110	346	73.77	77	16.42	46	9.81	0.86	0.84
115	342	72.92	81	17.27	46	9.81	0.83	0.85
120	342	72.92	86	18.34	41	8.74	0.82	0.83
125	341	72.71	88	18.76	40	8.53	0.80	0.77
130	337	71.86	93	19.83	39	8.32	0.80	0.79
135	336	71.64	98	20.90	35	7.46	0.81	0.76
140	336	71.64	100	21.32	33	7.04	0.81	0.73
145	342	72.92	103	21.96	24	5.12	0.80	0.70
150	336	71.64	109	23.24	24	5.12	0.81	0.69
155	330	70.36	117	24.95	22	4.69	0.78	0.69
160	330	70.36	118	25.16	21	4.48	0.79	0.67
165	325	69.30	121	25.80	23	4.90	0.78	0.66
170	321	68.44	127	27.08	21	4.48	0.78	0.66
175	319	68.02	130	27.72	20	4.26	0.76	0.68
180	319	68.02	130	27.72	20	4.26	0.77	0.66
185	322	68.66	132	28.14	15	3.20	0.74	0.63
190	317	67.59	136	29.00	16	3.41	0.76	0.63
195	314	66.95	141	30.06	14	2.99	0.75	0.61
200	307	65.46	147	31.34	15	3.20	0.72	0.62
205	305	65.03	151	32.20	13	2.77	0.73	0.62
210	300	63.97	154	32.84	15	3.20	0.73	0.63
215	295	62.90	160	34.12	14	2.99	0.73	0.58
220	293	62.47	165	35.18	11	2.35	0.70	0.58
225	289	61.62	167	35.61	13	2.77	0.73	0.58
230	290	61.83	170	36.25	9	1.92	0.69	0.57
235	284	60.55	176	37.53	9	1.92	0.69	0.60
240	281	59.91	179	38.17	9	1.92	0.69	0.57

**NTAP Network Appliance Corp.**  
**Days Reported: 216**

Delay	One-Sided		No		Double		Average High	Average Low
	Breakout	Percent	Breakout	Percent	Breakout	Percent	Maximum	Maximum
15	103	47.69	1	0.46	112	51.85	\$4.75	\$5.40
20	120	55.56	1	0.46	95	43.98	4.50	5.07
25	130	60.19	4	1.85	82	37.96	4.40	4.71
30	140	64.81	6	2.78	70	32.41	4.19	4.54
35	148	68.52	7	3.24	61	28.24	4.17	4.14
40	158	73.15	7	3.24	51	23.61	3.76	4.23
45	163	75.46	9	4.17	44	20.37	3.66	4.04
50	162	75.00	13	6.02	41	18.98	3.59	4.06
55	163	75.46	18	8.33	35	16.20	3.72	4.09
60	165	76.39	18	8.33	33	15.28	3.63	3.99
65	164	75.93	20	9.26	32	14.81	3.48	3.91
70	166	76.85	22	10.19	28	12.96	3.39	3.88
75	164	75.93	26	12.04	26	12.04	3.30	3.89
80	161	74.54	29	13.43	26	12.04	3.26	3.88
85	161	74.54	31	14.35	24	11.11	3.24	3.87
95	154	71.30	40	18.52	22	10.19	3.21	4.00
95	154	71.30	40	18.52	22	10.19	3.21	4.00
100	154	71.30	40	18.52	22	10.19	3.16	3.92
105	153	70.83	41	18.98	22	10.19	3.11	3.75
110	154	71.30	42	19.44	20	9.26	3.00	3.69
115	151	69.91	45	20.83	20	9.26	2.93	3.77
120	150	69.44	48	22.22	18	8.33	3.04	3.68
125	150	69.44	50	23.15	16	7.41	3.05	3.54
130	150	69.44	51	23.61	15	6.94	3.02	3.46
135	152	70.37	51	23.61	13	6.02	2.95	3.39
140	153	70.83	51	23.61	12	5.56	2.91	3.34
145	151	69.91	53	24.54	12	5.56	2.92	3.23
150	152	70.37	53	24.54	11	5.09	2.88	3.12
155	152	70.37	53	24.54	11	5.09	2.81	3.11
160	151	69.91	55	25.46	10	4.63	2.84	3.06
165	149	68.98	57	26.39	10	4.63	2.76	3.10
170	149	68.98	57	26.39	10	4.63	2.72	3.08
175	150	69.44	57	26.39	9	4.17	2.67	3.06
180	151	69.91	57	26.39	8	3.70	2.64	3.01
185	148	68.52	60	27.78	8	3.70	2.67	3.02
190	147	68.06	62	28.70	7	3.24	2.67	3.06
195	147	68.06	63	29.17	6	2.78	2.68	3.00
200	144	66.67	66	30.56	6	2.78	2.70	3.02
205	144	66.67	67	31.02	5	2.31	2.65	2.97
210	144	66.67	67	31.02	5	2.31	2.59	2.92
215	143	66.20	68	31.48	5	2.31	2.54	2.94
220	142	65.74	69	31.94	5	2.31	2.49	2.98
225	142	65.74	69	31.94	5	2.31	2.45	2.89
230	142	65.74	70	32.41	4	1.85	2.40	2.76
235	142	65.74	71	32.87	3	1.39	2.30	2.73
240	140	64.81	73	33.80	3	1.39	2.24	2.75

**NXTL NEXTLINK Communications Inc.**  
**Days Reported: 365**

Delay	One-Sided		No		Double		Average High	Average Low
	Breakout	Percent	Breakout	Percent	Breakout	Percent	Maximum	Maximum
15	201	55.07	3	0.82	161	44.11	\$3.76	\$3.70
20	222	60.82	4	1.10	139	38.08	3.50	3.58
25	235	64.38	8	2.19	122	33.42	3.30	3.47
30	245	67.12	10	2.74	110	30.14	3.22	3.28
35	261	71.51	14	3.84	90	24.66	2.99	3.15
40	266	72.88	15	4.11	84	23.01	2.89	2.98
45	270	73.97	17	4.66	78	21.37	2.81	2.89
50	275	75.34	19	5.21	71	19.45	2.63	2.81
55	278	76.16	25	6.85	62	16.99	2.53	2.73
60	277	75.89	27	7.40	61	16.71	2.49	2.66
65	285	78.08	28	7.67	52	14.25	2.46	2.56
70	287	78.63	30	8.22	48	13.15	2.41	2.48
75	283	77.53	37	10.14	45	12.33	2.40	2.46
80	283	77.53	39	10.68	43	11.78	2.35	2.44
85	279	76.44	45	12.33	41	11.23	2.32	2.45
95	274	75.07	53	14.52	38	10.41	2.29	2.40
95	274	75.07	53	14.52	38	10.41	2.29	2.40
100	277	75.89	53	14.52	35	9.59	2.26	2.35
105	277	75.89	56	15.34	32	8.77	2.26	2.29
110	274	75.07	61	16.71	30	8.22	2.28	2.23
115	273	74.79	63	17.26	29	7.95	2.23	2.16
120	272	74.52	66	18.08	27	7.40	2.25	2.11
125	272	74.52	69	18.90	24	6.58	2.21	2.09
130	270	73.97	71	19.45	24	6.58	2.19	2.07
135	270	73.97	72	19.73	23	6.30	2.15	2.07
140	269	73.70	74	20.27	22	6.03	2.15	2.06
145	269	73.70	74	20.27	22	6.03	2.12	2.03
150	269	73.70	75	20.55	21	5.75	2.07	2.02
155	265	72.60	79	21.64	21	5.75	2.09	1.97
160	266	72.88	79	21.64	20	5.48	2.07	1.93
165	268	73.42	80	21.92	17	4.66	2.02	1.87
170	268	73.42	81	22.19	16	4.38	1.99	1.82
175	264	72.33	85	23.29	16	4.38	1.95	1.80
180	262	71.78	87	23.84	16	4.38	1.97	1.81
185	259	70.96	91	24.93	15	4.11	1.90	1.83
190	261	71.51	92	25.21	12	3.29	1.91	1.83
195	259	70.96	93	25.48	13	3.56	1.89	1.79
200	256	70.14	97	26.58	12	3.29	1.88	1.75
205	255	69.86	98	26.85	12	3.29	1.85	1.73
210	249	68.22	103	28.22	13	3.56	1.83	1.76
215	246	67.40	107	29.32	12	3.29	1.81	1.74
220	245	67.12	107	29.32	13	3.56	1.78	1.70
225	244	66.85	110	30.14	11	3.01	1.76	1.74
230	241	66.03	113	30.96	11	3.01	1.75	1.68
235	241	66.03	115	31.51	9	2.47	1.73	1.65
240	237	64.93	119	32.60	9	2.47	1.78	1.60

**PMCS Pmc-Sierra Inc.**  
**Days Reported: 223**

Delay	One-Sided		No		Double		Average High	Average Low
	Breakout	Percent	Breakout	Percent	Breakout	Percent	Maximum	Maximum
15	116	52.02	2	0.90	105	47.09	\$10.10	\$10.69
20	128	57.40	2	0.90	93	41.70	9.19	9.93
25	133	59.64	4	1.79	86	38.57	9.14	9.26
30	145	65.02	5	2.24	73	32.74	8.29	8.42
35	153	68.61	7	3.14	63	28.25	7.85	8.05
40	163	73.09	9	4.04	51	22.87	7.27	7.29
45	167	74.89	10	4.48	46	20.63	6.99	6.94
50	171	76.68	10	4.48	42	18.83	6.68	6.65
55	171	76.68	15	6.73	37	16.59	6.57	6.55
60	172	77.13	17	7.62	34	15.25	6.43	6.43
65	170	76.23	19	8.52	34	15.25	6.31	6.27
70	168	75.34	22	9.87	33	14.80	6.16	6.12
75	167	74.89	25	11.21	31	13.90	6.13	5.97
80	169	75.78	26	11.66	28	12.56	6.00	5.88
85	172	77.13	27	12.11	24	10.76	5.90	5.73
95	173	77.58	30	13.45	20	8.97	5.75	5.37
95	173	77.58	30	13.45	20	8.97	5.75	5.37
100	173	77.58	32	14.35	18	8.07	5.64	5.24
105	171	76.68	35	15.70	17	7.62	5.61	5.21
110	167	74.89	39	17.49	17	7.62	5.73	5.17
115	167	74.89	41	18.39	15	6.73	5.74	5.01
120	169	75.78	41	18.39	13	5.83	5.65	4.93
125	168	75.34	42	18.83	13	5.83	5.48	4.82
130	169	75.78	42	18.83	12	5.38	5.46	4.67
135	167	74.89	44	19.73	12	5.38	5.38	4.71
140	168	75.34	44	19.73	11	4.93	5.29	4.61
145	165	73.99	47	21.08	11	4.93	5.12	4.68
150	165	73.99	47	21.08	11	4.93	5.03	4.56
155	164	73.54	49	21.97	10	4.48	5.00	4.49
160	164	73.54	50	22.42	9	4.04	5.01	4.47
165	160	71.75	54	24.22	9	4.04	4.90	4.51
170	158	70.85	56	25.11	9	4.04	4.98	4.48
175	157	70.40	58	26.01	8	3.59	4.95	4.45
180	155	69.51	60	26.91	8	3.59	4.98	4.53
185	154	69.06	62	27.80	7	3.14	4.85	4.63
190	154	69.06	63	28.25	6	2.69	4.84	4.52
195	152	68.16	65	29.15	6	2.69	4.85	4.47
200	151	67.71	66	29.60	6	2.69	4.75	4.47
205	150	67.26	67	30.04	6	2.69	4.70	4.40
210	148	66.37	69	30.94	6	2.69	4.68	4.38
215	148	66.37	69	30.94	6	2.69	4.52	4.35
220	143	64.13	74	33.18	6	2.69	4.56	4.46
225	141	63.23	76	34.08	6	2.69	4.50	4.49
230	140	62.78	78	34.98	5	2.24	4.37	4.45
235	139	62.33	80	35.87	4	1.79	4.40	4.44
240	136	60.99	83	37.22	4	1.79	4.43	4.44



**QCOM    Qualcomm Inc.**  
**Days Reported: 384**

One-Sided			No		Double		Average	Average
Delay	Breakout	Percent	Breakout	Percent	Breakout	Percent	High Maximum	Low Maximum
15	218	56.77	8	2.08	158	41.15	\$5.13	\$6.14
20	235	61.20	11	2.86	138	35.94	5.08	6.03
25	245	63.80	17	4.43	122	31.77	5.03	5.53
30	249	64.84	22	5.73	113	29.43	4.97	5.41
35	257	66.93	26	6.77	101	26.30	4.84	5.11
40	269	70.05	29	7.55	86	22.40	4.59	4.88
45	274	71.35	32	8.33	78	20.31	4.42	4.70
50	280	72.92	37	9.64	67	17.45	4.66	4.55
55	284	73.96	39	10.16	61	15.89	4.56	4.30
60	289	75.26	41	10.68	54	14.06	4.89	4.28
65	285	74.22	47	12.24	52	13.54	4.81	4.16
70	282	73.44	52	13.54	50	13.02	4.85	4.12
75	279	72.66	56	14.58	49	12.76	4.78	4.08
80	279	72.66	60	15.63	45	11.72	4.81	4.03
85	283	73.70	62	16.15	39	10.16	4.73	4.03
95	286	74.48	64	16.67	34	8.85	4.39	3.91
95	286	74.48	64	16.67	34	8.85	4.39	3.91
100	286	74.48	66	17.19	32	8.33	4.31	3.80
105	286	74.48	69	17.97	29	7.55	4.29	3.76
110	287	74.74	70	18.23	27	7.03	4.18	3.68
115	283	73.70	77	20.05	24	6.25	4.17	3.64
120	283	73.70	77	20.05	24	6.25	4.02	3.56
125	280	72.92	81	21.09	23	5.99	3.96	3.57
130	277	72.14	85	22.14	22	5.73	3.94	3.57
135	276	71.88	87	22.66	21	5.47	4.06	3.54
140	276	71.88	87	22.66	21	5.47	4.09	3.49
145	274	71.35	89	23.18	21	5.47	4.02	3.51
150	273	71.09	90	23.44	21	5.47	3.99	3.41
155	272	70.83	91	23.70	21	5.47	4.00	3.31
160	271	70.57	92	23.96	21	5.47	4.02	3.25
165	266	69.27	98	25.52	20	5.21	3.95	3.18
170	267	69.53	99	25.78	18	4.69	3.88	3.14
175	267	69.53	99	25.78	18	4.69	3.88	3.10
180	266	69.27	101	26.30	17	4.43	3.84	3.01
185	266	69.27	104	27.08	14	3.65	3.76	2.98
190	264	68.75	106	27.60	14	3.65	3.72	2.94
195	264	68.75	106	27.60	14	3.65	3.70	2.94
200	265	69.01	106	27.60	13	3.39	3.61	2.90
205	260	67.71	111	28.91	13	3.39	3.64	2.93
210	256	66.67	114	29.69	14	3.65	3.64	2.93
215	256	66.67	115	29.95	13	3.39	3.65	2.91
220	256	66.67	116	30.21	12	3.13	3.55	2.91
225	253	65.89	119	30.99	12	3.13	3.52	2.97
230	253	65.89	120	31.25	11	2.86	3.47	2.95
235	249	64.84	125	32.55	10	2.60	3.50	2.97
240	248	64.58	127	33.07	9	2.34	3.51	2.95

**QLGC QLogic Corp.**  
**Days Reported: 230**

Delay	One-Sided		No		Double		Average High	Average Low
	Breakout	Percent	Breakout	Percent	Breakout	Percent	Maximum	Maximum
15	124	53.91	2	0.87	104	45.22	\$6.69	\$7.19
20	134	58.26	6	2.61	90	39.13	6.12	6.69
25	142	61.74	8	3.48	80	34.78	5.82	6.23
30	150	65.22	13	5.65	67	29.13	5.74	5.92
35	152	66.09	15	6.52	63	27.39	5.35	5.69
40	160	69.57	19	8.26	51	22.17	5.03	5.30
45	162	70.43	22	9.57	46	20.00	4.69	5.44
50	163	70.87	25	10.87	42	18.26	4.70	5.39
55	164	71.30	28	12.17	38	16.52	4.53	5.36
60	163	70.87	32	13.91	35	15.22	4.56	5.17
65	160	69.57	36	15.65	34	14.78	4.40	5.12
70	159	69.13	40	17.39	31	13.48	4.32	5.04
75	158	68.70	43	18.70	29	12.61	4.27	4.98
80	160	69.57	43	18.70	27	11.74	4.11	4.76
85	162	70.43	44	19.13	24	10.43	3.85	4.63
95	165	71.74	47	20.43	18	7.83	3.88	4.40
95	165	71.74	47	20.43	18	7.83	3.88	4.40
100	165	71.74	48	20.87	17	7.39	3.73	4.30
105	161	70.00	51	22.17	18	7.83	3.78	4.17
110	158	68.70	54	23.48	18	7.83	3.67	4.19
115	156	67.83	56	24.35	18	7.83	3.68	4.19
120	158	68.70	56	24.35	16	6.96	3.61	4.14
125	158	68.70	58	25.22	14	6.09	3.62	4.15
130	157	68.26	60	26.09	13	5.65	3.54	4.09
135	158	68.70	60	26.09	12	5.22	3.58	4.00
140	158	68.70	60	26.09	12	5.22	3.45	3.92
145	158	68.70	60	26.09	12	5.22	3.35	3.80
150	158	68.70	61	26.52	11	4.78	3.31	3.65
155	157	68.26	62	26.96	11	4.78	3.23	3.65
160	157	68.26	62	26.96	11	4.78	3.23	3.61
165	155	67.39	64	27.83	11	4.78	3.20	3.60
170	152	66.09	67	29.13	11	4.78	3.20	3.64
175	150	65.22	69	30.00	11	4.78	3.22	3.63
180	153	66.52	68	29.57	9	3.91	3.15	3.54
185	151	65.65	71	30.87	8	3.48	3.12	3.50
190	152	66.09	71	30.87	7	3.04	3.02	3.51
195	152	66.09	71	30.87	7	3.04	2.95	3.37
200	151	65.65	72	31.30	7	3.04	2.90	3.35
205	150	65.22	74	32.17	6	2.61	2.81	3.40
210	149	64.78	75	32.61	6	2.61	2.79	3.38
215	148	64.35	76	33.04	6	2.61	2.71	3.37
220	146	63.48	78	33.91	6	2.61	2.73	3.32
225	145	63.04	79	34.35	6	2.61	2.69	3.24
230	142	61.74	82	35.65	6	2.61	2.68	3.25
235	142	61.74	84	36.52	4	1.74	2.66	3.18
240	140	60.87	86	37.39	4	1.74	2.52	3.13

**RMBS Rambus Inc.**  
**Days Reported: 206**

Delay	One-Sided		No		Double		Average High	Average Low
	Breakout	Percent	Breakout	Percent	Breakout	Percent	Maximum	Maximum
15	114	55.34	3	1.46	89	43.20	\$6.34	\$7.43
20	128	62.14	5	2.43	73	35.44	6.48	6.87
25	134	65.05	8	3.88	64	31.07	6.41	6.34
30	137	66.50	10	4.85	59	28.64	6.23	5.87
35	136	66.02	17	8.25	53	25.73	6.21	5.69
40	141	68.45	18	8.74	47	22.82	5.62	5.14
45	142	68.93	22	10.68	42	20.39	5.18	5.01
50	142	68.93	23	11.17	41	19.90	5.11	4.86
55	146	70.87	27	13.11	33	16.02	5.93	4.91
60	148	71.84	28	13.59	30	14.56	5.85	4.77
65	146	70.87	32	15.53	28	13.59	5.95	4.87
70	146	70.87	34	16.50	26	12.62	5.91	4.66
75	148	71.84	34	16.50	24	11.65	5.80	4.48
80	145	70.39	37	17.96	24	11.65	5.86	4.44
85	146	70.87	37	17.96	23	11.17	5.69	4.29
95	144	69.90	40	19.42	22	10.68	5.55	4.26
95	144	69.90	40	19.42	22	10.68	5.55	4.26
100	142	68.93	42	20.39	22	10.68	5.52	4.26
105	139	67.48	46	22.33	21	10.19	5.71	4.17
110	141	68.45	47	22.82	18	8.74	5.54	4.24
115	141	68.45	49	23.79	16	7.77	5.90	4.20
120	142	68.93	49	23.79	15	7.28	5.87	4.14
125	142	68.93	50	24.27	14	6.80	5.74	4.10
130	141	68.45	53	25.73	12	5.83	5.67	4.07
135	140	67.96	54	26.21	12	5.83	5.60	4.07
140	137	66.50	57	27.67	12	5.83	5.59	4.15
145	138	66.99	57	27.67	11	5.34	5.55	4.10
150	137	66.50	58	28.16	11	5.34	5.51	4.06
155	136	66.02	59	28.64	11	5.34	5.26	4.10
160	137	66.50	59	28.64	10	4.85	5.19	3.99
165	136	66.02	60	29.13	10	4.85	5.11	3.87
170	135	65.53	61	29.61	10	4.85	5.15	3.86
175	134	65.05	62	30.10	10	4.85	5.02	3.81
180	133	64.56	64	31.07	9	4.37	4.99	3.83
185	131	63.59	65	31.55	10	4.85	4.89	3.89
190	132	64.08	65	31.55	9	4.37	4.76	3.78
195	131	63.59	68	33.01	7	3.40	4.84	3.77
200	130	63.11	69	33.50	7	3.40	4.81	3.79
205	130	63.11	69	33.50	7	3.40	4.77	3.75
210	130	63.11	70	33.98	6	2.91	4.64	3.67
215	128	62.14	72	34.95	6	2.91	4.49	3.66
220	128	62.14	72	34.95	6	2.91	4.38	3.61
225	129	62.62	72	34.95	5	2.43	4.21	3.55
230	129	62.62	73	35.44	4	1.94	4.19	3.51
235	126	61.17	76	36.89	4	1.94	4.24	3.43
240	123	59.71	79	38.35	4	1.94	4.10	3.41

**SEBL Siebel Systems Inc.**  
**Days Reported: 231**

Delay	One-Sided		No	Percent	Double		Average	Average
	Breakout	Percent			Breakout	Percent	High	Low
			Breakout				Maximum	Maximum
15	111	48.05	3	1.30	117	50.65	\$6.13	\$5.82
20	128	55.41	4	1.73	99	42.86	6.22	5.32
25	140	60.61	5	2.16	86	37.23	5.82	5.00
30	149	64.50	8	3.46	74	32.03	5.61	4.73
35	152	65.80	10	4.33	69	29.87	5.30	4.80
40	156	67.53	12	5.19	63	27.27	4.97	4.65
45	165	71.43	13	5.63	53	22.94	4.73	4.53
50	173	74.89	15	6.49	43	18.61	4.47	4.61
55	175	75.76	17	7.36	39	16.88	4.34	4.48
60	173	74.89	21	9.09	37	16.02	4.24	4.52
65	174	75.32	21	9.09	36	15.58	4.12	4.37
70	176	76.19	22	9.52	33	14.29	4.06	4.18
75	172	74.46	29	12.55	30	12.99	4.26	4.08
80	173	74.89	31	13.42	27	11.69	4.22	4.03
85	171	74.03	34	14.72	26	11.26	4.25	3.92
95	170	73.59	37	16.02	24	10.39	4.13	3.75
95	170	73.59	37	16.02	24	10.39	4.13	3.75
100	168	72.73	40	17.32	23	9.96	4.08	3.69
105	169	73.16	43	18.61	19	8.23	4.05	3.58
110	169	73.16	45	19.48	17	7.36	4.01	3.49
115	167	72.29	48	20.78	16	6.93	4.00	3.48
120	167	72.29	49	21.21	15	6.49	4.01	3.44
125	167	72.29	51	22.08	13	5.63	3.91	3.35
130	165	71.43	54	23.38	12	5.19	3.95	3.30
135	166	71.86	54	23.38	11	4.76	3.88	3.29
140	166	71.86	55	23.81	10	4.33	3.82	3.27
145	164	71.00	58	25.11	9	3.90	3.82	3.22
150	162	70.13	60	25.97	9	3.90	3.80	3.12
155	161	69.70	61	26.41	9	3.90	3.76	3.11
160	160	69.26	61	26.41	10	4.33	3.57	3.06
165	157	67.97	64	27.71	10	4.33	3.50	3.08
170	158	68.40	64	27.71	9	3.90	3.52	3.06
175	159	68.83	64	27.71	8	3.46	3.54	3.05
180	156	67.53	67	29.00	8	3.46	3.58	3.03
185	156	67.53	68	29.44	7	3.03	3.53	2.92
190	155	67.10	69	29.87	7	3.03	3.47	2.85
195	154	66.67	71	30.74	6	2.60	3.52	2.82
200	154	66.67	72	31.17	5	2.16	3.53	2.80
205	153	66.23	73	31.60	5	2.16	3.55	2.78
210	153	66.23	73	31.60	5	2.16	3.52	2.74
215	151	65.37	76	32.90	4	1.73	3.49	2.77
220	151	65.37	77	33.33	3	1.30	3.48	2.81
225	149	64.50	79	34.20	3	1.30	3.53	2.76
230	146	63.20	81	35.06	4	1.73	3.45	2.67
235	146	63.20	82	35.50	3	1.30	3.46	2.64
240	143	61.90	85	36.80	3	1.30	3.44	2.58

**SUNW Sun Microsystems Inc.**  
**Days Reported: 385**

Delay	One-Sided		No		Double		Average High	Average Low
	Breakout	Percent	Breakout	Percent	Breakout	Percent	Maximum	Maximum
15	161	41.82	4	1.04	220	57.14	\$2.89	\$3.10
20	185	48.05	4	1.04	196	50.91	2.70	2.93
25	207	53.77	8	2.08	170	44.16	2.57	2.89
30	217	56.36	8	2.08	160	41.56	2.48	2.71
35	232	60.26	12	3.12	141	36.62	2.44	2.51
40	244	63.38	14	3.64	127	32.99	2.43	2.33
45	252	65.45	16	4.16	117	30.39	2.37	2.26
50	263	68.31	16	4.16	106	27.53	2.22	2.16
55	274	71.17	16	4.16	95	24.68	2.14	2.10
60	279	72.47	23	5.97	83	21.56	2.10	2.03
65	279	72.47	25	6.49	81	21.04	2.09	1.96
70	283	73.51	26	6.75	76	19.74	2.01	1.93
75	286	74.29	31	8.05	68	17.66	1.92	1.92
80	292	75.84	31	8.05	62	16.10	1.84	1.86
85	294	76.36	32	8.31	59	15.32	1.78	1.81
95	295	76.62	39	10.13	51	13.25	1.71	1.78
95	295	76.62	39	10.13	51	13.25	1.71	1.78
100	297	77.14	39	10.13	49	12.73	1.66	1.75
105	295	76.62	47	12.21	43	11.17	1.72	1.71
110	295	76.62	51	13.25	39	10.13	1.72	1.66
115	295	76.62	55	14.29	35	9.09	1.75	1.63
120	296	76.88	56	14.55	33	8.57	1.71	1.61
125	291	75.58	64	16.62	30	7.79	1.69	1.62
130	289	75.06	67	17.40	29	7.53	1.68	1.61
135	292	75.84	67	17.40	26	6.75	1.65	1.57
140	289	75.06	72	18.70	24	6.23	1.64	1.57
145	289	75.06	74	19.22	22	5.71	1.65	1.56
150	286	74.29	77	20.00	22	5.71	1.66	1.55
155	284	73.77	80	20.78	21	5.45	1.64	1.54
160	283	73.51	81	21.04	21	5.45	1.65	1.52
165	283	73.51	83	21.56	19	4.94	1.58	1.50
170	283	73.51	84	21.82	18	4.68	1.56	1.49
175	280	72.73	86	22.34	19	4.94	1.65	1.49
180	279	72.47	87	22.60	19	4.94	1.64	1.49
185	279	72.47	87	22.60	19	4.94	1.54	1.48
190	280	72.73	87	22.60	18	4.68	1.53	1.47
195	281	72.99	87	22.60	17	4.42	1.60	1.45
200	278	72.21	91	23.64	16	4.16	1.59	1.45
205	277	71.95	93	24.16	15	3.90	1.51	1.44
210	274	71.17	96	24.94	15	3.90	1.63	1.44
215	272	70.65	99	25.71	14	3.64	1.49	1.42
220	269	69.87	102	26.49	14	3.64	1.48	1.39
225	268	69.61	103	26.75	14	3.64	1.46	1.40
230	267	69.35	105	27.27	13	3.38	1.45	1.38
235	264	68.57	108	28.05	13	3.38	1.43	1.39
240	265	68.83	109	28.31	11	2.86	1.39	1.37

**TXN Texas Instruments Inc.**  
**Days Reported: 322**

Delay	One-Sided		No		Double		Average	Average
	Breakout	Percent	Breakout	Percent	Breakout	Percent	High Maximum	Low Maximum
15	113	35.09	2	0.62	207	64.29	\$3.85	\$3.89
20	130	40.37	2	0.62	190	59.01	3.61	3.37
25	146	45.34	2	0.62	174	54.04	3.26	3.19
30	161	50.00	5	1.55	156	48.45	3.21	3.31
35	169	52.48	7	2.17	146	45.34	2.99	3.21
40	175	54.35	7	2.17	140	43.48	2.69	3.24
45	182	56.52	8	2.48	132	40.99	2.69	3.10
50	191	59.32	9	2.80	122	37.89	2.65	3.04
55	200	62.11	11	3.42	111	34.47	2.52	2.84
60	209	64.91	12	3.73	101	31.37	2.45	2.76
65	218	67.70	14	4.35	90	27.95	2.38	2.65
70	221	68.63	15	4.66	86	26.71	2.35	2.53
75	223	69.25	17	5.28	82	25.47	2.25	2.42
80	227	70.50	20	6.21	75	23.29	2.15	2.42
85	230	71.43	22	6.83	70	21.74	2.18	2.41
95	233	72.36	27	8.39	62	19.25	2.07	2.38
95	233	72.36	27	8.39	62	19.25	2.07	2.38
100	239	74.22	28	8.70	55	17.08	1.99	2.31
105	242	75.16	29	9.01	51	15.84	2.00	2.26
110	248	77.02	29	9.01	45	13.98	2.05	2.30
115	246	76.40	31	9.63	45	13.98	1.99	2.28
120	241	74.84	35	10.87	46	14.29	1.93	2.12
125	245	76.09	37	11.49	40	12.42	1.94	2.09
130	240	74.53	42	13.04	40	12.42	1.92	2.09
135	234	72.67	49	15.22	39	12.11	1.93	2.13
140	236	73.29	50	15.53	36	11.18	1.90	2.06
145	238	73.91	51	15.84	33	10.25	1.88	2.07
150	234	72.67	56	17.39	32	9.94	1.89	2.06
155	235	72.98	57	17.70	30	9.32	1.85	1.95
160	234	72.67	58	18.01	30	9.32	1.81	1.92
165	234	72.67	61	18.94	27	8.39	1.82	1.87
170	234	72.67	64	19.88	24	7.45	1.81	1.90
175	235	72.98	65	20.19	22	6.83	1.80	1.85
180	234	72.67	69	21.43	19	5.90	1.83	1.83
185	230	71.43	73	22.67	19	5.90	1.83	1.83
190	229	71.12	74	22.98	19	5.90	1.79	1.80
195	229	71.12	75	23.29	18	5.59	1.77	1.76
200	229	71.12	75	23.29	18	5.59	1.74	1.74
205	223	69.25	82	25.47	17	5.28	1.75	1.76
210	223	69.25	83	25.78	16	4.97	1.76	1.67
215	219	68.01	86	26.71	17	5.28	1.73	1.69
220	219	68.01	86	26.71	17	5.28	1.73	1.64
225	218	67.70	89	27.64	15	4.66	1.71	1.63
230	216	67.08	92	28.57	14	4.35	1.68	1.62
235	213	66.15	97	30.12	12	3.73	1.67	1.64
240	208	64.60	101	31.37	13	4.04	1.70	1.61

**UNH United Healthcare Corp.**  
**Days Reported: 453**

Delay	One-Sided		No		Double		Average High	Average Low
	Breakout	Percent	Breakout	Percent	Breakout	Percent	Maximum	Maximum
15	212	46.80	2	0.44	239	52.76	\$1.84	\$2.03
20	253	55.85	2	0.44	198	43.71	1.69	1.88
25	274	60.49	2	0.44	177	39.07	1.62	1.71
30	291	64.24	2	0.44	160	35.32	1.53	1.60
35	306	67.55	2	0.44	145	32.01	1.45	1.48
40	313	69.09	7	1.55	133	29.36	1.40	1.40
45	326	71.96	7	1.55	120	26.49	1.39	1.35
50	336	74.17	9	1.99	108	23.84	1.32	1.28
55	339	74.83	18	3.97	96	21.19	1.32	1.26
60	334	73.73	25	5.52	94	20.75	1.31	1.22
65	337	74.39	29	6.40	87	19.21	1.30	1.16
70	337	74.39	33	7.28	83	18.32	1.26	1.14
75	337	74.39	38	8.39	78	17.22	1.21	1.13
80	338	74.61	42	9.27	73	16.11	1.20	1.10
85	333	73.51	48	10.60	72	15.89	1.19	1.05
90	328	72.41	55	12.14	70	15.45	1.17	1.02
95	339	74.83	58	12.80	56	12.36	1.12	1.03
100	344	75.94	56	12.36	53	11.70	1.10	1.01
105	344	75.94	61	13.47	48	10.60	1.08	1.00
110	340	75.06	66	14.57	47	10.38	1.07	0.96
115	334	73.73	70	15.45	49	10.82	1.03	0.98
120	328	72.41	78	17.22	47	10.38	1.03	0.96
125	326	71.96	84	18.54	43	9.49	1.03	0.95
130	324	71.52	87	19.21	42	9.27	1.00	0.92
135	330	72.85	88	19.43	35	7.73	0.98	0.89
140	328	72.41	90	19.87	35	7.73	0.97	0.89
145	326	71.96	93	20.53	34	7.51	0.92	0.88
150	323	71.30	92	20.31	38	8.39	0.92	0.87
155	330	72.85	91	20.09	32	7.06	0.88	0.89
160	328	72.41	93	20.53	32	7.06	0.89	0.86
165	324	71.52	97	21.41	32	7.06	0.89	0.83
170	325	71.74	103	22.74	25	5.52	0.89	0.84
175	328	72.41	104	22.96	21	4.64	0.92	0.84
180	319	70.42	111	24.50	23	5.08	0.91	0.79
185	311	68.65	115	25.39	27	5.96	0.87	0.82
190	311	68.65	121	26.71	21	4.64	0.91	0.84
195	309	68.21	129	28.48	15	3.31	0.91	0.80
200	307	67.77	126	27.81	20	4.42	0.91	0.76
205	302	66.67	132	29.14	19	4.19	0.91	0.77
210	299	66.00	136	30.02	18	3.97	0.88	0.79
215	300	66.23	135	29.80	18	3.97	0.82	0.77
220	296	65.34	145	32.01	12	2.65	0.80	0.72
225	300	66.23	139	30.68	14	3.09	0.84	0.72
230	290	64.02	148	32.67	15	3.31	0.79	0.75
235	290	64.02	146	32.23	17	3.75	0.77	0.71
240	288	63.58	150	33.11	15	3.31	0.80	0.69

**YH00 Yahoo Inc.**  
**Days Reported: 377**

	One-Sided		No		Double		Average	Average
Delay	Breakout	Percent	Breakout	Percent	Breakout	Percent	High	Low
							Maximum	Maximum
15	178	47.21	0	0.00	199	52.79	\$6.96	\$5.77
20	208	55.17	0	0.00	169	44.83	6.70	5.82
25	221	58.62	1	0.27	155	41.11	6.26	5.82
30	230	61.01	4	1.06	143	37.93	5.96	5.65
35	248	65.78	5	1.33	124	32.89	5.64	5.31
40	263	69.76	7	1.86	107	28.38	5.31	5.08
45	272	72.15	9	2.39	96	25.46	5.03	4.95
50	280	74.27	10	2.65	87	23.08	4.92	4.74
55	279	74.01	16	4.24	82	21.75	4.79	4.59
60	280	74.27	18	4.77	79	20.95	4.72	4.49
65	283	75.07	23	6.10	71	18.83	5.21	4.53
70	284	75.33	25	6.63	68	18.04	5.14	4.38
75	288	76.39	27	7.16	62	16.45	5.01	4.23
80	291	77.19	31	8.22	55	14.59	4.90	4.13
85	292	77.45	32	8.49	53	14.06	4.78	4.12
95	297	78.78	34	9.02	46	12.20	4.59	3.99
95	297	78.78	34	9.02	46	12.20	4.59	3.99
100	292	77.45	40	10.61	45	11.94	4.64	3.96
105	292	77.45	43	11.41	42	11.14	4.59	3.90
110	291	77.19	47	12.47	39	10.34	4.58	3.84
115	292	77.45	49	13.00	36	9.55	4.51	3.95
120	288	76.39	54	14.32	35	9.28	4.56	4.01
125	288	76.39	55	14.59	34	9.02	4.52	3.96
130	286	75.86	58	15.38	33	8.75	4.44	3.97
135	287	76.13	58	15.38	32	8.49	4.37	3.95
140	286	75.86	59	15.65	32	8.49	4.33	3.85
145	287	76.13	60	15.92	30	7.96	4.31	3.83
150	287	76.13	60	15.92	30	7.96	4.27	3.79
155	287	76.13	63	16.71	27	7.16	4.60	3.76
160	285	75.60	66	17.51	26	6.90	4.59	3.73
165	282	74.80	71	18.83	24	6.37	4.49	3.70
170	281	74.54	74	19.63	22	5.84	4.45	3.70
175	280	74.27	76	20.16	21	5.57	4.60	3.65
180	281	74.54	78	20.69	18	4.77	4.59	3.55
185	280	74.27	78	20.69	19	5.04	4.53	3.53
190	280	74.27	80	21.22	17	4.51	4.57	3.53
195	279	74.01	82	21.75	16	4.24	4.57	3.61
200	276	73.21	86	22.81	15	3.98	4.60	3.57
205	274	72.68	88	23.34	15	3.98	4.58	3.54
210	272	72.15	90	23.87	15	3.98	4.61	3.48
215	271	71.88	93	24.67	13	3.45	4.64	3.42
220	272	72.15	93	24.67	12	3.18	4.58	3.36
225	270	71.62	96	25.46	11	2.92	4.53	3.42
230	268	71.09	100	26.53	9	2.39	4.49	3.41
235	267	70.82	101	26.79	9	2.39	4.47	3.39
240	263	69.76	106	28.12	8	2.12	4.55	3.42



# INDEX

- Absolute stop, 8
- Accuracy:
  - in breakout system, 245
  - of Directional Day Filter, 245
  - in trading strategy, 170–171, 176
- Automated systems:
  - applications, 253–255
  - charting package, 97
  - testing, 254–255
- Average daily range, 139
- Back testing, 19
- Bias, implications of, 7, 40, 45, 128, 144, 191
- Breakeven, 7, 183
- Breakout strategy:
  - characteristics of, 7, 223–224
  - Directional Day Filter and, 145
  - intraday range, 155–159, 235–251
  - time frame, 236–242
  - in trading theory, 159, 235–251
- Buy signals:
  - Directional Day Filter and, 123
  - in four-step process, 203, 206
  - Percent R, 55–57
  - Relative Strength Index (RSI) and, 47, 49–50, 52
  - sensitivity settings, 68–69
  - sideways market, 172–173
  - stochastic indicator and, 39, 41–42, 44–45
  - in trading theory, 156–157, 165
- Buy stops:
  - Directional Day Filter and, 140–141, 145
  - dual stochastic, 114
  - in four-step process, 191–193, 214, 216
  - implications of, 24–25
  - support and resistance, 24, 91–92, 94, 107
- Buy windows:
  - actual use in trading, 113, 179–227
  - defined, 111
  - in four-step process, 184, 197–198, 205, 212, 216
- Category 1 resistance:
  - characteristics of, 76–78, 83
  - formation, 77
  - sensitivities for entry *vs.* exit, 91
- Category 1 support:
  - characteristics of, 78
  - formation, 77, 88–89

Category 1 support (*Continued*)  
 sensitivities for entry *vs.*  
   exit, 91  
   simultaneous, 86  
   within category 3, 87  
 Category 2 resistance:  
   characteristics of, 82–84  
   dual stochastic and, 112–113,  
     115–117  
   exhaustion correction, 184  
   formation, 79  
   as a trailing stop, 116  
 Category 2 support:  
   in actual trading, 104–105,  
     112–117  
   characteristics of, 79–82  
   dual stochastic and, 112,  
     114–115  
   formations, 86, 88–89  
   in four-step process, 182, 186,  
     188–189, 191, 193, 200, 202,  
     217–218  
   multiple, 81–82  
   sensitivities for entry *vs.* exit,  
     90–91  
   simultaneous, 86  
   trading theory, 170  
   as a trailing stop, 116  
 Category 3 resistance:  
   in actual trading, 107  
   characteristics of, 84–86  
   formation, 84, 218–219  
   in four-step process, 192, 195,  
     198, 201, 205, 215, 218  
   pattern recognition, 94–95, 97,  
     218  
   sensitivities for entry *vs.* exit,  
     90–91  
 Category 3 support:  
   in actual trading, 109  
   formation, 84  
   simultaneous, 86

Chart analyst, function of, 81  
 Cluster system, 13  
 Commissions, 6, 12, 215  
 Computerized charting, 97  
 Computerized systems, 3, 253–258  
 Confidence level, importance of, 11,  
   20, 31–32, 132, 141  
 Corrections:  
   defined, 149  
   downward, 38, 184  
   exhausted, in major trend,  
     147–178  
   late-day, 117  
   minor, 159  
   rallies and, 40  
   Relative Strength Index (RSI)  
     and, 51  
   sensitivity settings and, 70  
   support and resistance  
     and, 136  
 Countertrend trades, 210–212,  
   220  
 Curve fitting, 254  
 Cyclone System, 12  
  
 Day trade, defined, 5  
 Day trading, generally:  
   long-term, 6–12  
   overview, 5  
   short-term, 12–14  
   stock selection, 14–15  
   system development, 15–16  
   trader style and personality, 15,  
     30, 116, 127  
 Directional Day Filter:  
   analysis, illustration of,  
     190–191, 198–199  
   applications, generally, 7, 40, 43  
   breakout system, 235–251  
   calculation of, 123–124  
   downward trends and, 59, 162,  
     165

- how it works, 123–131
- illustration of, 181–182, 207, 229
- importance of, 122–123
- interpretation of, 125–136
- operating theory, 120–121
- purpose of, 120
- research confirming accuracy of, 245–246
- sideways days, 132–136
- stop placement and, 141
- support and resistance levels
  - determined by, 82, 104–106, 136–141, 144, 151, 166, 173–174
- trading signals, impact on, 164
- trading theory and, 153–154, 157, 159, 163, 180–226
- Dominant trend, determination of, 35, 40, 60, 119, 122–123, 128, 147, 213–215
- Double bottom, 86, 88, 156, 188
- Double breakout, 242, 244
- Double top, 24–25, 189
- Down market, 182, 207. *See also* Downtrending day
- Downtrending day:
  - correction of, 186
  - defined, 122
  - Directional Day Filter and, 125, 128–129, 137
  - dual stochastic and, 115
  - exhausted, 128
  - false signals in, 44, 52, 58–60, 71–72
  - implications of, generally, 35
  - Percent R and, 59–60
  - prediction of, 120
  - Relative Strength Index (RSI) and, 52
  - sensitivity settings and, 65, 71
  - stochastic indicator and, 40
- Dual Stochastic:
  - in actual trading, 112–117, 149
  - compared to dual Percent R, 153
  - compared to dual RSI, 153
  - compared to single setting, 61–67
  - defined, 61–62
  - with Directional Day Filter, 179–233
  - parameters of, 68
  - trading accuracy, 147–178
  - trading frequency, 147–178
- Early range breakout, 27–28, 251
  - with Directional Day Filter, 141, 143, 235
- Earnings:
  - news, 120
  - warnings, 20
- ECNs (electronic communication networks), 30
- Entry strategies:
  - breakout system, 224, 240–241, 256
  - conservative, 176
  - early entry, 169–170
  - high-probability entry, 194
  - optimal, 187
  - support and resistance, impact on, 107–108, 186
- Equity, stop loss and, 101
- Equity curve, 11–13, 21
- eSignal, 260, 263
- Exhaustion, 31
  - of corrections, 45, 149–151, 156, 178
  - in day trading, 34–36, 179–233
  - as identified by RSI, stochastic, Percent R, 34, 179–233
  - illustration of, 33

- Exit strategies:
  - breakout system, 224, 256
  - conservative, 173, 213
  - determination of, 236, 242–244
  - Directional Day Filter and, 142
  - importance of, 159, 185
  - reversals, 199
  - stochastic indicator and, 41
  - timing exit, 210
  - trailing stop, 186, 198
- Fading, 110, 189
- Fast D indicator, 63–66, 68
- Fear, 17–18, 22
- Follow-through trading, 6
- Four-step process, trading strategy:
  - entry point, defined, 35, 179
  - exit strategy, determination of, 35, 179
  - illustrations of, 180–230
  - major trend, determination of, 35, 179, 181
  - minor trend, determination of, 35, 179
  - multiple signals in, 193
  - overview, 179
- Fundamentals, 120
- Fundamental trading, 26–27
- Genesis Financial Data Services, 262
- Government reports, 120
- Greed, 17–18, 22
- High-percentage trading, 104
- High-probability trades, 140, 177, 179, 194
- Historical charts, 61, 91, 95, 230
- Historical data, significance of, 243, 254
- Historical highs, 53
- Interest rate, 120
- Intraday high, 163, 213
- Intraday low, 163, 165–166, 168, 183, 212–213, 219, 223
- Intraday range, 139, 144, 155, 176, 238, 248–249
- Investor psychology, 15
- Lane, George C., 38
- Linear regression, 265
- Long-term day trading, 6–12
- Losses, generally:
  - dealing with, 19–20
  - in four-step process, 227
  - multiple, 11
  - in real-time trading, 14
  - trends and, 7, 10–11
- Major trend(s):
  - determination of, 35, 179, 181
  - Directional Day Filter and, 131–132
  - exhausted corrections, 147–178
  - Percent R indicator, 59–60
  - Relative Strength Index (RSI) and, 51
  - signals against, 209–210
- Market makers, 30
- Market noise, 34, 46, 218
- Market orders, 24, 104, 225
- Market swings, impact of, 173
- Minor trend, determination of, 35, 179
- Momentum, 145
- Money management stops, 49

- Money management strategies, 133
- Multiple Sensivity Settings:
  - as a filter, 62
  - parameters of, 63
  - signal accuracy, 70
  - system, using stochastic, 68
  - trading signals, frequency of, 61–65, 70
  - various thresholds, using 62–66
- Multiple signals, 193
- Nasdaq, 247
- News, impact of, 27, 120
- Nontrending days, *see* Sideways days
- Offset prices, 234
- Omega Research, 263, 265
- Online indicators, 1
  - alternate use of:
    - with Directional Day Filter, 180–226
    - with dual Percent R, 151, 156, 160, 164, 177
    - with dual RSI, 153, 157, 160
    - with dual stochastic, 149–150, 158, 163, 166, 176
    - with support and resistance levels, 170, 180–226
  - conventional use of, 37–61
  - exhausted corrections,
    - identification within major trend, 147–178
  - Percent R, 52–60
  - Relative Strength Index (RSI), 46–52
  - stochastic, 38–46
- Online trading, 1, 259
- Opening range breakout, 7–8, 235–252
- Order entry, electronic, 116
- Oscillators, defined, 37. *See also* Online indicators
- Oscillator indicators,
  - characteristics of, 34–35, 38, 44, 47
- Out-of-sample routine, 254, 258
- Overbought conditions, implications
  - of, 34, 38, 40–41, 43, 45, 47, 53–56, 62–63, 66, 181, 229
- Overbought theory, 44
- Oversold conditions, implications
  - of, 34, 39, 40–41, 43, 45, 47, 53–56, 62–63, 66, 229
- Overtrading, 21
- Panic, 117, 247
- Parallel Function Technology, 29, 266
- Pattern recognition, 91–97
- Percent R indicator:
  - applications, 35, 37
  - buy signals, 55–56
  - characteristics of, 52–53
  - development of, 52
  - dual signals, implications of, 151–153, 156–157, 160–161, 164, 166, 169, 173–174, 211, 217, 227
  - illustration of, 56–60
  - reversal system, using, 56–60
  - sell signals, 55–56
  - sensitivity settings and, 73
  - theory, 53
- Personality, stocks and commodities, 27–30
- Price(s):
  - human factor in, 23–25
  - patterns, 26
- Price movement, generally:
  - accelerated, 100
  - in four-step process, 210
  - random, 34, 46, 218

- Probabilities, 30–31
- Profit taking, 20, 117, 192, 210, 242
- Profit target, 162, 243, 256–257
- Pullbacks:
  - Directional Day Filter and, 140–141, 144–145
  - in four-step process, 193, 212
  - trading theory and, 155–156
- Rallies, *see* Uptrending days
  - commodity markets, 17–18
  - corrections and, 142, 186, 189
  - exhausted, 132
  - false sell signals, 181
  - influences on, generally, 9
  - prospective, 191–192
  - resistance and, 190
  - reversals and, 186
  - sell signals and, 113, 163
  - strong, 44, 70
  - trading theory and, 165–166
  - weak, 40
- Range expansion, 27, 121
- Rationalization, 19
- Real Time Pivot, 266
- Real-time trading, 7, 14, 62, 91, 95, 163, 187
- Relative Strength Index (RSI):
  - applications, generally, 35, 37
  - buy signals, 47, 49–50, 52
  - Directional Day Filter and, 133
  - dual, 153–154, 157, 160–162, 164, 168, 173–174, 177, 193
  - implications of, 50
  - reversal system, using, 48–52
  - sell signals, 47–48, 50
  - sideways days, 133
  - stochastic indicator
    - distinguished from, 46
  - theory, 46
- Reversal(s):
  - dual stochastic, 115
  - implications of, generally, 7, 266
  - stochastic indicator and, 41
  - trades, 161, 188, 199, 201, 204
  - trends, 117
- Reversal systems, 41–45, 48–52, 56–60
- Risk management, 101, 142, 203–204, 210
- Risk profile, 215–216
- Roller-coaster systems, 12
- Running the stops, 101
- Scalping systems, 13
- Self-adaptive techniques, 28, 29
- Self-fulfilling prophecy, 25
- Selling pressure, 78
- Sell signals:
  - Directional Day Filter and, 123
  - dual RSI, 224
  - dual stochastic, 114, 181, 184–185
  - Percent R, 55–57
  - Relative Strength Index (RSI), 47–48, 50
  - sensitivity settings, 68
  - sideways market, 172–173
  - stochastic indicator and, 39, 41–42, 45
  - in trading theory, 151–154, 159, 163–164, 169

- Sell stop:
  - Directional Day Filter and, 140, 142
  - in four-step process, 193, 224
  - support and resistance, 91–92, 108
- Sell windows, 111, 202, 226
- Sensitivity settings, implications
  - of, 57, 61
- Shorting trades, 43
- Short-term day trading, 12–14
- Short-term trend, identification of, 34
- Sideways days, 133, 136, 195–196, 199
  - buy signals, 197–198
  - characteristics of, 215
  - defined, 196
  - Directional Day Filter and, 120, 132–136, 171
  - entry strategy, 198
  - exhaustion theory, 35
  - generally, 10
  - oscillator indicators and, 50–51, 57, 72, 171
  - Percent R, 59
  - prediction of, 120
  - Relative Strength Index (RSI), 50–51
  - sell signals, 197–198
  - sensitivity settings and, 64, 73
  - support and resistance, pattern recognition, 97
  - trading strategies for, 171–178
- Single breakouts, 249
- Slippage, 6, 12, 212, 215, 217
- Smoothed functions, 265
- Standard deviation, 265
- Stochastic indicator:
  - applications, 35, 37–41
  - bias, altering, 40
  - buy signals, 41–42, 155–156
  - crossover system, 41
  - dual, implications of, 112–113, 115, 149–150, 155–156, 159, 163, 181, 184–185, 187, 199, 206, 227
  - exit placement, 41
  - interpretation of, 39, 41
  - reversal system, using, 41–45
  - sell signals, 41–42
  - sensitivity settings, 63
  - stop placement, 41
  - theory, 38
- Stock selection, 14–15, 174, 236, 245–250
- Stop accumulation, 101
- Stop loss, *see* Stop placement
  - in automated system, 257
  - orders, generally, 8, 96, 225
  - significance of, 104
  - support and resistance, 101, 104
  - in trading theory, 159
- Stop placement:
  - breakout system, 236, 245
  - cancel and replace, 116
  - conservative *vs.* aggressive, 9, 14
  - early range breakout and, 27
  - fine-tuning, support and resistance levels, 109–110
  - in four-step process, 189, 193–195, 199–200, 203
  - generally, 8
  - necessity of, 20
  - resistance points, 219
  - stochastic indicator and, 41
  - support and resistance, 88

- Support and resistance:
  - appearance, real time *vs.* historical, 91–97
  - applications, generally, 99–109
  - construction, 86
  - countertrend trades, 213
  - defined, 100
  - Directional Day Filter, defined by, 136–145
  - entry *vs.* exit, sensitivities for, 90–91
  - entry points defined by, 102–110, 112–117
  - formations, multiple and simultaneous, 86–91
  - importance of, 75–76
  - intraday calculations, 134, 136
  - market-created, 162, 209
  - pattern recognition, 91–97
  - recognition, visual *vs.* automated, 97
  - sensitivity settings and, 71, 89
  - stop placement and, 102–110
  - structure, 76–86
- Systems:
  - automated:
    - curve fitting of, 254
    - uses of, 253–255
    - testing of, 254–255
  - breakout, *see* Early range breakout
  - customizing, 3, 15, 27, 30, 249–251
  - following accurately, 11, 19, 127
  - setting parameters of, 255–257
  - as a stock selection tool, 255
- Target price, 27, 212
- Technical analysis, 23–24, 31
  - vs.* fundamental analysis, 26
- Time frame:
  - Directional Day Filter and, 124–125
- Timing exit, 210
- Trade organization, 231–234
- Trader(s):
  - aggressive, 15, 207, 222–223, 236
  - checklist, 232–233
  - conservative, 9, 15, 161, 213, 222–223
  - emotional state of, 11
  - personality, 15, 30
  - psychology, 15, 17–20
  - successful, characteristics of, 20, 99
- Trade Signal Corporation Ltd., 260
- TradeStation (Omega), 266
- Trading approaches, technical *vs.* fundamental, 26–27
- Trading as a business, 18
- Trading style:
  - implications of, 84, 116, 127, 148, 151
  - individual, 1, 2, 15, 30, 115–116, 127, 148, 171
- Trading theory, components of, 149–171
- Trailing stop, implications of, 8, 49, 90, 162, 183, 186, 188, 198, 220–222
- Trend(s), prediction of, 196–197.
  - See also specific types of trends*
- Trend day, defined, 6
- Trend exhaustion, *see* Exhaustion, trend
- Trendless days:
  - Directional Day Filter and, 126, 134
  - prediction of, 121
  - strategies for, 51



- U.S. Treasury bonds, 137–138
- Upticks, 102, 136
- Uptrending day:
  - defined, 6, 120–122
  - Directional Day Filter and, 125, 128, 137, 141
  - dual stochastic indicator and, 114
  - exhaustion correction, 184
  - false signals in, 43–44, 51–52, 58–59, 70–71
  - implications of, generally, 34
  - prediction of, 120
  - sell signals and, 182
  - sensitivity settings and, 65, 69
  - stochastic indicators, 44
  - support and resistance, 86, 106, 113
  - trading strategies for, 176
- Visual chart monitoring, 97
- Volatile market, 196
- Volatile stock, 12, 16, 174, 236
- Volatility, oscillator indicators and, 47
- Wilder, Welles, 46
- Williams, Larry, 52, 59